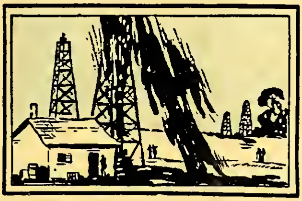
V. 2 no. 6

Louisiana Conservation REVIEW



Oysters Help Anemia Sufferers

✣ ✣ ✣

The Snowy Egret

✣ ✣ ✣

Annual Fire Report

✣ ✣ ✣

Wild Flowers of Louisiana

✣ ✣ ✣

Grass Made Into Cloth

STATE OF LOUISIANA

UNION · JUSTICE · CONFIDENCE

Published Monthly by the
DEPARTMENT OF CONSERVATION

MARCH
1932

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VOL. II. NEW ORLEANS, LA., MARCH, 1932 NO. 6

The Value of Fur-Bearing Animals

NEW YORK, by definite and intelligent conservation support has increased wild life production of the State from perhaps $300,000.00 a year to upward of $5,000,000.00 gross. In 1909 there were not 12 wild beaver in the Adirondacks. Two hundred were liberated in 1910, and in 1924 it was conservatively estimated that there were 8,000, and now there are probably 12,000. Their value could not be less than $120,000.00. The beaver yield on an original investment of $10,000.00 for restocking should be at least $15,000.00 annually. During the year 1928, the State of New York issued 659,197 hunting, fishing and fur-taking licenses. 37% of the persons to whom licenses were issued reported taking game, fish, and fur-bearing animals conservatively estimated to have a commercial value of $2,619,303.00.

Below, we give you a table showing the average value of furs per square mile, taken during the season of 1930:

State	Area	Value per Sq. Mi.
Pennsylvania ..	45,000 sq. mi.	$ 55.00
Oregon	96,000 sq. mi.	2.60
Louisiana	48,000 sq. mi.	140.00
Kentucky	40,400 sq. mi.	15.50
United States .	3,000,000 sq. mi.	22.00

Information for this article was compiled by special permission of the publishers of Current History Magazine, from an article entitled "America's Wealth in Wild Animals" by Raymond S. Spears, which appeared in the September, (1931) issue. Bulletin of Kentucky Game and Fish Commission Dec., 1931.

Louisiana Conservation Review

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JAMES P. GUILLOT . . . . Editor
N. E. SIMONEAUX . . Assoc. Editor
WM. G. RANKIN . . Business Mgr.

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Secretary Hyde to Reorganize Migratory Bird Board

IN order to achieve a broader representation of sportsmen and conservationists upon the Advisory Board, Migratory Bird Treaty Act, and to obtain a large measure of local cooperation in the problems of conservation and enforcement, a reorganization of the board is being planned by Secretary of Agriculture Hyde. As a means of securing more direct regional representation on this board, the States have been tentatively divided into ten groups. These groups are so arranged as to give consideration to such matters as relative density of population and the similarity of conditions affecting migratory birds, as well as the various interests of those who are concerned in the welfare of these birds. A majority of the members of the board will be selected from these groups in cooperation with and upon the recommendation of the State conservation officials. In addition to the members representing the various groups of States, the secretary will select and appoint a number of members at large.

Senate Asked to Combine Bureaus

WITH one important wild-life restoration measure already passed by the Senate, three other bills affecting game management now await senatorial action. They call for the establishment of a federal department of conservation which would combine all conservation functions of the government under one secretary, for the creation of fish and game sanctuaries in the national forests, and for a fish culture and game farm experimental station in close proximity to the national capital. The bill approved by the Senate and now before the House would compel closer cooperation on game and fish restoration matters by the various federal agencies.

The bills for the consolidation of all conservation activities in one department and for the game experimental laboratory were introduced by the Senate Committee on Conservation of Wild-Life Resources, through Senators Frederic C. Walcott of Connecticut and Harry B. Hawes of Missouri, who also presented the approved measure. Senator Joe T. Robinson of Arkansas introduced the bill to establish suitable areas in the national forests for the protection and production of valuable wild life. National forests are open to hunting under state laws, and by state cooperation a number of such refuges already exist.

The purpose of the game laboratory, as pictured by the Senate committee, would be to find facts and make experiments relating to the successful production of valuable wild life, to train experts in game matters, to furnish new knowledge and expert men for use in the game programs of states, schools, and colleges, and otherwise to develop and demonstrate methods on the preservation, rearing, and distribution of game and fish.

Under the suggested conservation department would fall the present activities of the Bureau of Biological Survey and the Forest Service of the Department of Agriculture, the Bureau of Fisheries of the Department of Commerce, and the National Park Service of the Department of Interior, in addition to several minor functions.

Smithsonian Institute Finds Oysters Help Anemia Sufferers

* * *

RAW oysters should have much the same effect as liver treatment of the pernicious anemias, according to Dr. Paul Bartsch, the Smithsonian Institute's authority on mollusks and professor of zoology at George Washington University.

Recent indications, Dr. Bartsch says, are that the potent principle in liver which builds up red blood corpuscles is closely allied to inorganic copper salts. The ordinary oyster contains more copper in a form which will be taken up by the human body tissues than any other food product in nature. Now science is trying to devise methods of getting copper in a digestible form into milk and other common foods.

Many years ago, Dr. Bartsch said, it was a common practice of physicians to prescribe oysters in large quantities for patients in a rundown and anemic condition. This was the result of purely empirical observation that there was something in the mollusk which improved the blood. It was before the days when the pernicious anemias were generally recognized as distinct diseases. This dietary prescription gradually dropped out of medical practice, since there was no exact check on results and nobody knew just what happened in the blood stream.

A little later, Dr. Bartsch said, the oyster began to be condemned by many physicians because it was found to contain considerable copper, then considered as a body poison. Special warnings were issued against greenish-colored oysters which were supposed to contain unusual amounts of the dreaded element. So by the time the anemias began to be a vital problem for medicine the oyster was somewhat in disrepute.

Then the pernicious anemias were recognized as almost incurable blood diseases and took thousands of lives before the discovery about six years ago that many cases could be cured or at least held in an arrested state, through large additions of liver to the diet. This was followed by the development of liver extracts.

One result has been that liver, which butchers used to sell for a few cents a pound, has greatly advanced in price. The extracts, prepared by an elaborate process, always have been expensive. Besides, for many persons, liver is about the most disagreeable material that can be prescribed and some even have specific antipathies which makes it impossible for them. An intensive search has gone on for the specific thing in the liver which sets off the mechanism responsible for building the red corpuscles. The same thing has been demonstrated to exist, in smaller quantities, in kidneys and brains. The search has begun to concentrate on copper.

An oyster bed, Dr. Bartsch says, is literally a mine of organic copper. Apparently little can be accomplished with metallic copper, which will not be taken up by the body. Oysters are cheap and abundant, compared with liver, and will be far more palatable to many anemia victims. Dr. Bartsch said that he merely wished to call the attention of the medical profession to the enormous possibilities of the mollusks and urge experimental verification of his belief that they will arrest the anemias.

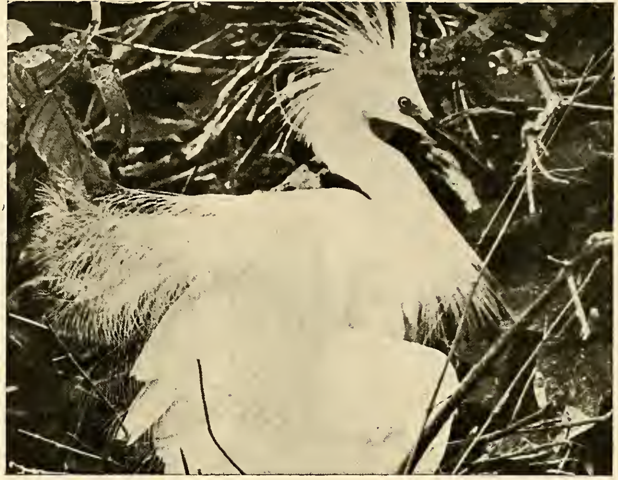
The connection was suggested to him, Dr. Bartsch said, when a controversy arose over the possibility of killing the enormous swarms of sea nettles which were infesting the Middle Atlantic bathing beaches. Fear was expressed that if copper sulphate was used it also would poison the oyster beds, but he was convinced that the method was safe because of the oyster's extraordinary capacity for absorbing copper salts.

The oyster also contains, Dr. Bartsch pointed out, small quantities of iodine, traces of which in the diet are now recognized as essential for the prevention of thyroid gland complaints. Clams are much richer in this element. It is noteworthy, Dr. Bartsch said, that not many years ago the oyster was condemned also because of this iodine content, then considered poisonous.

During recent years spectroscopic analysis of the content of human body tissues, a method so delicate that it can detect one part in millions, has shown that the body contains numerous mineral elements of which the most plentiful are iron and copper. Both now are considered essential elements of protoplasm itself and introduce bio-chemists to a promising field for the explanation of some physiological processes which have remained mysterious. It's becoming evident that there must be a copper balance, although when it is introduced into the body in inorganic form in any considerable quantities it is poisonous.

It remains for bio-chemists to work out, Dr. Bartsch said, whether some copper complex peculiar to the liver is essential for the production of red blood corpuscles, any great diminution of which means eventual death.

The Snowy Egret



By ALFRED M. BAILEY
Chicago Academy of Sciences

(Reprinted by Courtesy of "American Forests")

MANY SEASONS have passed since I visited my first heronry along the shores of the Gulf of Mexico. I had hoped to find the nests of the snowy egret—birds which had become woefully few, due to the demand for their plumes in earlier days—and a native of the region had offered to show me a few pairs nesting in the willows bordering a clump of cypress off in the marsh. From a distance, the large trees, silhouetted against the blue sky, looked not unlike palms, and the warmth of the water under foot, the tangle of sawgrass and marsh vegetation through which we tore our way, and the cheerful drone of mosquitoes aided in the delusion that we were in the tropics.

It was not a long journey to our heronry, and we found several nests with half-grown pin-feathery youngsters which greeted us with startled squawks, and excited jabs with their soft beaks. The nests were from six to eight feet from the water, and were rather fragile affairs for such large young ones. A few old egrets circled wildly overhead, frightened by the invasion, and other nesting birds from the tall cypresses sailed out to investigate. Long-winged, long-tailed, and long-necked anhingas floated along gazing curiously among the willows; big blue herons squawked disconsolately; little blue and Louisiana herons rushed by hurriedly, and clapper rails hurled invectives from the surrounding reeds. All in all, it was a delightful time for a northerner, in spite of the heat and the decaying vegetation. Our friend, the marshman, could see nothing to

At the Avery Island Sanctuary in Louisiana, where the Snowy Egret—known as the "Bonnet Martyr" —now lives in peace and security, protected by law.

enthuse about; he saw nothing there but some pot-bellied young birds which were not good to eat.

There are two egrets in North America, the large American egret, with long, straight plumes upon the back, and the snowy egret, which is only half the size of the former, and has delicate plumes which are recurved at the tips. Both birds are now becoming common, while thirty years or more ago they were nearly exterminated by plume hunters who killed them by thousands for the much prized "aigrettes." But it was the snowy heron I was searching for—a bird which had been described as the most beautiful and graceful of all marsh birds.

The late Dr. Forbush observed a group of the birds once in a Florida swamp during courtship manoeuvers and described delightfully the way they strutted about, raising and lowering their delicate, lace-like plumage, bowing and completely absorbed in charming one another.

The full nuptial plumage is gorgeous. This is when the adults are at their best. The gleaming whiteness of the raised crest and scapular feathers makes a perfect picture against the dark shadows.

It is found breeding in the United States from North Carolina southward along the Atlantic coast, all along the Gulf of Mexico, and from Great Salt Lake southward. There appears to be two forms in the United States, *Egretta thula thula* being found east of the Rocky Mountains, while those of the western United States are *Egretta thula brewsteri,* the western birds being slightly larger in size. They are colony nesting birds, many pairs usually associating with water birds of other species; the birds of various regions adapt themselves to local conditions. In Louisiana, the nests were found in cypresses and willow trees and in button bushes, while in Texas they were discovered in the prickly pear cactus and in low huisache trees. In Utah they usually build their frail platforms in the tules and canes.

Last season I returned to Louisiana to make motion pictures of animal life for the Chicago Academy of Sciences. Ten years had passed and a great increase in the number of marsh birds was noted. Herons of several species were observed commonly in places where none were seen in other years, and snowy and American egrets in large flocks were not uncommon. There is one place in the South which stands apart from other places, and that is Avery Island, which we made our headquarters, occupying a little cabin on a hill. It was a picturesque spot, for through the moss-hung trees we could see a little artificial lake grown with willows and button bushes, and from our cabin each bush seemed crowded with white blossoms—but, occasionally, one of these light spots would rise from its resting place and sail away on immaculate wing. We were looking upon one of the most interesting examples of conservation in the world, for the white birds which were crowding the bushes of the pond were the beautiful plume birds, the snowy egrets. Thousands were nesting and rearing their young.

A purely domestic scene—the youngsters beg for food in no uncertain terms and it is distinctly up to the parent to produce.

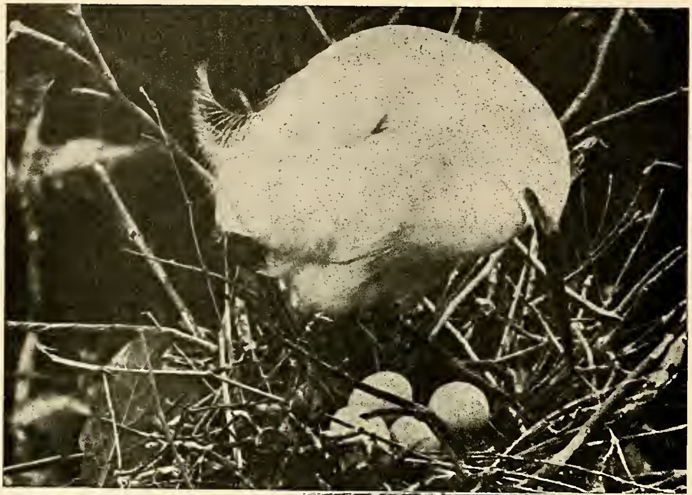
Apparently the demand for food is being fully met! Sometimes the parent birds fly off as far as twenty-five miles to satisfy the demands of their voracious young for food.

Many other species of birds inhabited the sanctuary, among them being Louisiana, little blue, and little green herons, anhingas, and gallinules. The shores of the pond are lined with willows, button bushes, gardens, and a bamboo thicket, and on one side, within thirty feet of nesting birds, is a spur of the Salt Mine Railway. The herons often refused to rise from their nests when the trains passed.

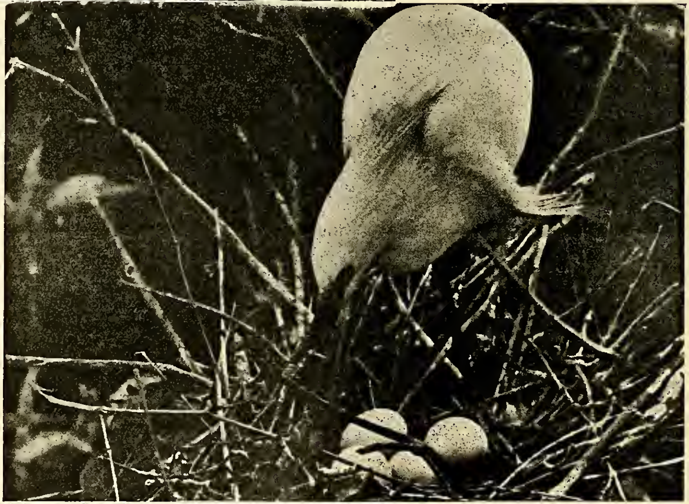
The history of Willow Pond, as the preserve is known, is an interesting one. A small creek formerly meandered between the Avery Island hills, but when the heronry was started the stream was dammed, making an artificial lake. Then the owner, E. A. McIlhenny, searched the nearby marshes until he found several nests of snowy egrets. The young were taken to Willow Pond and kept in captivity during the summer. Mr. McIlhenny visited his egrets daily, fed them from his hands until they became very tame, and then, in the fall, liberated them. They remained a few days, flying back and forth over the pond, but returning to the cage to roost. At last, they disappeared, one by one, and were seen no more until the following spring. A few returned in April, built their nests soon after, and reared their young in safety, and, as year followed year, they and their young returned. Other species joined the snowy egret and now the pond has all the nesting birds the bushes will hold, and those that find conditions too crowded for their comfort start colonies in other parts of the marshland. The birds are so numerous that sticks must be furnished them for nesting material, for otherwise, they destroy the bushes by breaking off the small branches.

One may row a boat about the pond, and if no sudden movement is made the herons will not take alarm. The crack of a stick will send them squawking in all direc-

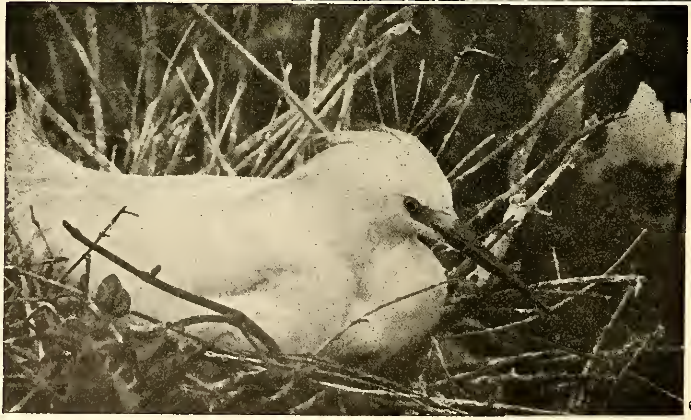
(Continued on page 34)



MOST BEAUTIFUL OF ALL MARSH BIRDS, THE SNOWY EGRET IS FOUND BREEDING IN THE UNITED STATES FROM SOUTH CAROLINA SOUTHWARD ALONG THE COAST AND THE GULF OF MEXICO.



THEY ARE COLONY NESTING BIRDS AND THE NESTS WERE FOUND IN CLOSE PROXIMITY—JUST BEYOND A JABBING DISTANCE. THIS MOTHER BIRD IS ABOUT TO RESUME HER BROODING DUTIES.



BEFORE SHE SETTLES BACK DOWN ON THE FOUR PALE BLUE EGGS, SHE MUST HOVER ABOUT TO MAKE SURE THAT NO INTRUDERS HAVE BEEN THERE AND THAT EVERYTHING IS JUST AS SHE LEFT IT.

LOUISIANA'S ANNUAL FIRE REPORT

By V. H. SONDEREGGER

State Forester

LOUISIANA, as well as the other Southern states, suffered from a severe drought during the 1930-31 season. The year 1931 particularly was very dry, and the forests throughout Louisiana were very dry and easily subject to forest fires. The newspaper dispatches carried articles from time to time concerning the great number of forest fires in the Southern and Atlantic border states. Louisiana, however, was very fortunate in its forest fire protection work, obtaining results; and at no time during the two years of the dry spell have the forests burned beyond the control of the organization.

The Department of Conservation, through the Division of Forestry, is protecting 5,597,840 acres of forest lands in its protection units. The protection units are lands on which the landowners pay two cents per acre per year to the Division of Forestry for protection. The Forestry Division, through Federal and State funds, contributes two cents per acre per year, and with a total of four cents per acre per year protects the forest lands from fires.

Forest fire is the greatest enemy of reforestation. Eliminating forest fires from the cut-over lands in the Southern states will produce large reproduction of young tree seedlings, as very little land in the state of Louisiana cannot be brought back naturally by fire prevention and permitting the seed trees to reseed these areas. Where there is a small area left that has been burned over badly and lacks seed trees, artificial planting is necessary.

Louisiana installed a new system of fire prevention on July 1, 1930. The whole organization was placed on a twelve-months operating basis, and no "closed season" on forest fires is recognized. All forestry employees are retained monthly for the twelve months of the year.

Upon checking over the averages for forest fires and their records for the past ten years, the facts show that forest fires can occur any month.

In addition to the protection unit work of the Forestry Division, the adjacent areas that are not under the direct supervision of the Forestry Division suffered very little loss from fires. The citizens of Louisiana have become forest-minded and are giving all of their cooperation and aid for fire protection and the development of timber growth on the idle cut-over acreage of the state.

Louisiana has the largest protection area in the Southern states, and it has an enviable record of loss during the dry spell of 1931 of 2.6 per cent. In fact, the 1931 record of loss is lower than the preceding years of 1929 and 1930.

It is assumed that 1.0 per cent loss of acreage by forest fires is the objective in forest fire protection work. Louisiana's loss during the drought year of 1931 was 2.6 per cent. With normal weather conditions there is no reason why the Louisiana Division of Forestry cannot obtain this objective. In fact, Louisiana leads all states in the loss records, as it is protecting the largest area of forest lands under intense protective measures.

To assist the forestry employees to respond promptly to suppress forest fires, 21 observation towers have been established. Two more towers have been approved by the General Forestry Governing Board, making a total of 23 towers. These towers are connected with the homes of the employees with 3,000 miles of telephone lines and 300 telephones. This equipment permits speedy detection and suppression of all forest fires.

The Department of Conservation, through its division of Forestry, extends its appreciation to the landowners, lumbermen, and Federal officials who assisted the Forestry Division in reorganizing the forestry work and establishing a system that has apparently overcome the forest fire evil to the extent of holding the loss to a minimum. It is doubtful if the loss can be held to less than 1.0 per cent, as fire will always be with us and will always be a problem to combat.

The detailed results of the forest fire prevention work is submitted herewith and the data will furnish interesting information as to results.

COMPARISON OF FIRES BY MONTHS.

1929, 1930, 1931.

Month	Number of Fires			Acreage Burned		
	1929	1930	1931	1929	1930	1931
January	284	272	266	18,263	22,085	8,241
February	287	608	528	16,844	48,467	29,484
March	764	577	738	54,500	36,431	34,305
April	173	468	315	8,553	24,973	10,551
May	26	67	55	970	1,079	1,118
June	44	212	93	6,882	13,375	3,539
July	58	268	118	1,735	10,728	5,144
August	216	251	87	20,374	12,781	2,604
September	192	50	270	15,622	1,208	14,089
October	457	29	392	109,062	478	18,577
November	24	86	362	700	2,370	16,014
December	146	38	17	8,637	835	1,105
Totals	2,671	2,926	3,241	262,142	174,810	144,771

COMPARISON OF FIRE PREVENTION—GENERAL RESULTS.

1929, 1930, 1931.

	1929	1930	1931
Protected Area	4,142,750*	5,003,750*	5,597,840*
Number of Fires	2,671†	2,926†	3,241†
Area Burned	262,142*	174,810*	144,771*
Average Size of Fire	98.1*	59.7*	44.7*
Per Cent Burned	6.3%	3.5%	2.6%
Timber Damage	$182,516.00	$177,756.00	$145,744.00
Miscellaneous Damage	$19,110.00	$12,850.00	$14,001.00

*Acres. †Fires.

TABLE NO. 1.

Summary of Reported Fires for Protected Areas in Louisiana.

January 1 to December 31, 1931.

Protection Area	Area Protected (Acres)	Number of Fires	Area Burned (Acres)	Per Cent Burned	Average Size of Fire	Damage			Suppression	
						Timber	Other	Total	Hours of Fighting	Estimated Cost
Morehouse	149,760	71	2,638	1.7	37.1	$ 2,629	$ 223	$ 2,852	623	$ 177
Union	350,000	426	9,921	2.8	23.3	9,915	885	10,800	2,786	811
North Louisiana	2,200,000	1,044	53,045	2.4	50.8	52,570	5,240	57,810	14,412	3,463
Bienville-Jackson	800,000	434	20,301	2.5	47.0	21,468	1,991	23,459	6,269	1,824
Sabine	370,000	190	5,786	1.6	30.5	5,732	568	6,300	1,603	393
Vernon	80,000	129	3,758	4.7	29.1	3,728	358	4,086	1,525	444
Beauregard-Calcasieu	75,000	3	5	.0	1.7	3	....	3	2	....
Allen	154,580	200	13,348	8.6	66.7	13,337	1,301	14,638	2,664	782
Livingston, St. Helena, Tangipahoa	690,000	362	19,917	2.9	55.0	20,054	1,926	21,980	3,704	895
Washington-St. Tammany	600,000	252	10,367	1.7	41.1	10,667	951	11,618	2,366	560
St. Tammany	110,000	130	5,685	5.2	43.7	5,641	558	6,199	705	158
St. Landry	11,000	....	....	....	....	....	....	....	....	....
State Forest	7,500	....	....	....	....	....	....	....	....	....
Totals	5,597,840	3,241	144,771	2.6	44.7	$145,744	$ 14,001	$ 159,745	36,659	$ 9,507

479,000 acres added July 1, 1931.

TABLE NO. 2.

How Fires Were Discovered.

January 1 to December 31, 1931.

Discovered by	Number of Fires	Per Cent by Number	Area Burned (Acres)	Average Size of Fire (Acres)
Employee in Charge	1,108	34.2	48,977	44.2
Towerman	1,774	54.7	82,072	46.3
Other State Employee	152	4.7	5,772	38.0
Volunteer	207	6.4	7,950	33.6
Totals	3,241	100.0	144,771	44.7

TABLE NO. 3.

How Fires Were Extinguished.

January 1 to December 31, 1931.

How Extinguished.	Number of Fires	Per Cent by Number	Area Burned (Acres)	Average Size of Fire (Acres)
State Organization	3,039	93.8	139,475	45.9
Volunteer	92	2.9	1,622	17.6
Rained Out	14	.4	304	21.7
Burned Out	96	2.9	3,370	35.1
Totals	3,241	100.0	144,771	44.7

TABLE NO. 4.

Classification by Size.

January 1 to December 31, 1931.

Size of Fire	Number of Fires	Per Cent by Number	Area Burned (Acres)	Suppression	
				Hours of Fighting	Estimated Cost
0— ¼ Acres	81	2.5	......	75	$ 18
¼— 10 Acres	1,347	41.6	6,125	5,601	1,493
10—100 Acres	1,505	46.4	59,066	17,724	4,582
100—500 Acres	268	8.3	50,953	9,350	2,383
500—Over Acres	40	1.2	28,627	3,909	1,031
Totals	3,241	100.0	144.771	36,659	$9,507

TABLE NO. 5.

Classification by Causes.

January 1 to December 31, 1931.

Cause of Fire	Number of Fires	Per Cent by Number	Area Burned (Acres)	Damage			Suppression	
				Timber	Other	Total	Hours of Fighting	Estimated Cost
Lightning	19	.6	1,870	$ 1,878	$ 185	$ 2,063	337	$ 84
Railroads	73	2.3	1,360	1,345	149	1,494	713	181
Campers	82	2.5	1,437	1,425	132	1,557	639	163
Smokers	314	9.7	12,442	12,683	1,223	13,906	3,728	963
Brush Burning	191	5.9	6,742	7,197	692	7,889	1,599	433
Incendiary	1,812	55.9	91,903	92,018	8,927	100,945	20,761	5,466
Logging	131	4.1	4,145	4,198	375	4,573	1,578	308
Miscellaneous	612	18.8	24,724	24,852	2,304	27,156	7,256	1,896
Unknown	7	.2	148	148	14	162	48	13
Totals	3,241	100.0	144,771	$145,744	$ 14,001	$159,745	36,659	$ 9,507

TABLE NO. 6.
Study of Fires by Time of Day.
January 1 to December 31, 1931.

A. M. Fires				P. M. Fires			
Time	Number of Fires	Area Burned (Acres)	Average Size of Fire (Acres)	Time	Number of Fires	Area Burned (Acres)	Average Size of Fire (Acres)
1:00	7	331	47.3	1:00	709	35,716	50.4
2:00	4	535	133.7	2:00	478	18,290	38.3
3:00	8	171	21.4	3:00	400	12,725	31.8
4:00	5	100	20.0	4:00	249	6,621	26.6
5:00	4	375	93.8	5:00	105	3,146	30.0
6:00	14	506	36.1	6:00	78	2,112	27.1
7:00	14	489	35.0	7:00	59	1,730	29.3
8:00	53	2,292	43.2	8:00	35	893	25.5
9:00	103	4,608	44.7	9:00	13	462	35.5
10:00	232	17,012	73.3	10:00	10	327	32.7
11:00	272	15,254	56.1	11:00	6	393	65.5
12:00	252	15,526	61.6	12:00	20	1,007	50.3
Totals	968	57,199	59.1	Totals	2,162	83,422	38.6

	Number of Fires	Area Burned (Acres)
A. M. Fires	968	57,199
P. M. Fires	2,162	83,422
Origin Hour Not Given	111	4,150
Totals	3,241	144,771

TABLE NO. 7.
Study of Fires by Months in Year.
January 1 to December 31, 1931.

Month	Number of Fires	Per Cent by Month	Area Burned (Acres)	Average Size of Fires (Acres)
January	266	8.2	8,241	39.8
February	528	16.3	29,484	55.8
March	738	22.8	34,305	46.5
April	315	9.7	10,551	33.5
May	55	1.7	1,118	20.3
June	93	2.9	3,539	38.1
July	118	3.6	5,144	43.6
August	87	2.7	2,604	30.0
September	270	8.3	14,089	52.2
October	392	12.1	18,577	47.4
November	362	11.2	16,014	44.2
December	17	.5	1,105	65.0
Totals	3,241	100.0	144,771	44.7

TABLE NO. 8.
Forest Type.
January 1 to December 31, 1931.

Forest Type	Number of Fires	Per Cent by Number	Area Burned (Acres)	Per Cent by Area	Average Size of Fire (Acres)
Longleaf Pine	921	28.4	49,476	34.2	53.7
Shortleaf Pine	1,365	42.1	48,683	33.6	35.7
Mixed Pine	337	10.4	19,565	13.5	57.5
Mixed Pine and Hardwoods	589	18.2	26,589	18.4	45.1
Hardwoods	29	.9	458	.3	15.8
Totals	3,241	100.0	144,771	100.0	44.7

Sanctuaries for Brown Bears

Reprinted from NATURE MAGAZINE, January, 1932

ONE by one our large mammals are threatened with extinction from persecution in the name of sport, or from commercialized exploitation. Everywhere there are people who for one reason or another have the will and the power to destroy. The grizzly bear, one of the most distinctive of America's wild animals, has long been extinct in most of our states. Only a few now remain alive, mainly in the protection of the National Parks. Now comes the realization that the great bears of Alaska—brown bears and grizzlies—are in dire need of protection.

Sanctuaries of adequate size, so situated as to serve the more interesting forms of the various types, seem to be the only solution to a problem that has aroused to earnest effort a number of interested individuals and organizations, especially the American Society of Mammalogists, and the New York Zoological Society. It seems fitting that the American Nature Association, which exists mainly to work for the preservation of our threatened wild life resources, should end its influence to this worthy effort. It was this decision that largely motivated the Pack-Finley expedition to Southern Alaska in the summer of 1931, an account of which will appear in next month's issue of *Nature Magazine*. Another camera hunter, John M. Holzworth, has spent several seasons with Alaska's large bears, also on Admiralty Island, and has published in book form an able defence of the brown bear, based largely on his own close associations with the animal.

The wild life of Alaska is under the administration of the Alaska Game Commission, composed of a member from each of the four judicial divisions and a representative of the Biological Survey. Under its regulations the large bears, though classed as game animals, enjoy at the hands of residents no close season and no bag limits, excepting in the three areas classed as National Parks or National Monuments, and in certain other restricted areas. In most of the Territory, therefore, even in the seven restricted areas, the large bears are given no protection from residents. For a non-resident, and over most of Alaska, where hunting is permitted from September 1 to June 20, the bag limit is two bears.

No reasonable person would deny to the governing commission the power to limit the activities of animals so large and powerful as the brown bears, but no one can in fairness assert that the bears are now receiving adequate protection. The provision that a resident may kill a brown or grizzly bear whenever it is about to attack or molest persons or property, while seemingly not unreasonable on its face, is one that leaves the bear little security in a land where many of the residents seem to be in favor of its rapid and complete extermination. The idea that it is a manly thing to kill a wild animal is unfortunately still far too prevalent. Many a man who would not face a cow will shoot even a baby bear.

Alaska has the distinction of being the habitat of the largest carnivorous mammals now known, and probably the largest that ever walked the earth. Whether in strict truth this distinction belongs to the Kadiak bear, *Ursus middendorffi*, of Kadiak and Afognak Island, or to the Peninsula brown bear, *Ursus gyas*, no man knows, for no exact measurements or weights of individuals that might fairly be regarded as representing the species have ever been put on record. In addition to these giant bears, Alaska is the home of several other species of brown and grizzly bears whose characteristics are almost unknown, and never will be known unless sanctuaries are set aside where they may be permitted to reach maximum size, and where they may be studied scientifically. Few bears equal in size to those killed 40 years ago are now brought back by the hunters. If the requirements of the situation from the standpoint of the scientist, the lay student, and the Nature lover be met, there must be several sanctuaries.

We believe that an area of suitable size on the Alaska Peninsula should be reserved where no brown bears would be hunted by white men, but where resident natives might be allowed to kill any bears that become dangerous to humans. Such permission, however, should be contingent on absolute prohibition of commercial exploitation. This area would provide for the perpetuation of *Ursus gyas*.

For the benefit of *Ursus middendorffi* there should be another area, preferably on Kadiak Island, or on Afognack Island, provided there still exists there a sufficiently abundant bear population to insure the perpetuation of this giant race. Here also hunting by white men should be prohibited, and the killing of individual bears by natives should be rigidly restricted.

(Continued on page 38)

NEW PROCESS MAKES GRASS INTO CLOTH

A METHOD of successfully purifying ramie, the oldest and strongest vegetable fibre known, has at last been found, and, according to indications, the new process is likely to effect a revolution in the textile and affiliated industries, it was learned recently.

Ramie, known also as china grass and belonging to the nettle family, has been used from time immemorial. The Egyptians wrapped mummies in it, but the process of obtaining large quantities of the finished product by removing the gums and other impurities has been so laborious—it is still done by hand in China—that very little could be made at a time, and it has brought big prices.

The only method of chemically treating the nettle, with a sulphuric acid mixture, has been going on for about fifty years, has cost some millions of dollars and has resulted in making the textile industry "ramie-shy." Experiments have been made and abandoned because only a small amount of the product has stood up under use.

A process has now been perfected, however, without the use of sulphuric acid, which successfully removes the gum and other impurities, and the resulting fibre and yarn appear to have met every test by noted chemical experts, by textile and fabric makers and by one of the oldest textile machine manufacturers in the United States.

The process has been perfected by the Universal Fibre Corporation, 350 Madison Avenue, under the direction of Dr. Samuel S. Eveland, chemist, electrical engineer and inventor, who has made research his hobby for the last twenty-five years.

Many products already have been woven from ramie obtained by the new and secret purifying process, and the number of uses to which it may be put, according to those who have tested the new ramie yarn, appear to be infinite. The yarn is said to make a finer linen than flax, and the pulp a paper-testing machines will not tear. Because it is stronger wet than dry, retaining its original strength when dried again, ramie is said to be superior to yarns now made from other fibres.

Under the new process a product is obtained that is said to be as high in alpha cellulose—used in making rayon, lacquers, and nitro cellulose products—as is cotton. An admixture of ramie to rayon makes a product that does not rot or break, and provides a stronger and more durable garment than those made by most types of rayon.

Experiments have shown that the newly processed ramie, substituted for cotton in the making of asbestos brake linings, will withstand more heat and will deteriorate much less rapidly than linings made of cotton and asbestos.

Paper makers who have been furnished ramie as a basis for experiments with paper have reported that it makes parchment 50 to 75 per cent stronger than any now made. Because it is stronger wet than dry it makes a felt for paper manufacture that is regarded as superior to any yet manufactured. For the same reason it makes a filter used for filtering sugar that is five times as strong as any filter now made.

It has been demonstrated that ramie will grow wherever cotton is raised and further north. It is not attacked by insects, does not require fertilizing, and an ordinary crop is said to yield 1,500 pounds to the acre, compared with 150 pounds of cotton to the acre.

A group of Louisiana bankers and merchants, interested in the new process because of the possibility that it may save the Southern cotton farmers, is now looking into the possibilities of outlets for the raw material if they should decide to grow the plant in their State.

Approximately $62,000,000 worth of linen is imported into the United States annually. This linen, made of flax, is manufactured in Belgium and Ireland, some in Russia. A Belgian manufacturer who spent eight weeks here investigating the new method of purifying or degumming ramie, said that when it is turned out on a large scale it probably will damage the foreign linen business irretrievably, and build up a linen industry for the United States.

Recently a representative of Barclays Bank, London, a British flax expert and a Lancashire spinner visited this country to look into the process and sought to induce Dr. Eveland to make an arrangement for the British rights to the new process.

Proctor & Schwartz of Philadelphia, manufacturers of textile machinery for more than 100 years, have made many tests of the yarn from the newly treated ramie fibre and have reported

(*Continued on page 38*)

Preserving Oklahoma's Forests

By GEORGE R. PHILLIPS
State Forester, State of Oklahoma

APART of Oklahoma's share of the Southern pine area, comprising approximately 1,312,000 acres, is now being protected from forest fires. A cooperative system in which the Federal Government, private landowners, and the Oklahoma Forest Service participate, with the Oklahoma Forest Service in charge of operations in the field, has been in effect for the last five years. The protected area lies within three Southeastern counties of Oklahoma.

Before protection work was initiated it was a rare thing for any considerable area to escape burning longer than three years. From 30 to 75 per cent of the forest land burned over each year. Since protection has been initiated the average loss for the last five years has been about 10 per cent. During 1930 it was about 7 per cent and to date for 1931 but slightly over 1 per cent of the area has been burned over.

A protective organization with towers situated in four prominent heights of land, which quite effectively overlook the entire area, act as the detection part of the organization; rangers, each in charge of a district of about 200,000 acres, wardens underneath them responsible for about 35,000 acres each and smokechasers to supplement these other forces during emergencies, with a district forester, who is a trained forester, in charge of the whole field organization, completes the protective system.

Telephone lines are used to connect the headquarters office at Broken Bow with all towers and with rangers' and wardens' homes. A total of over 350 miles of forest service lines, in addition to some private lines, are in use.

Much educational work in the form of motion picture and slide shows, given at all country schoolhouses within and adjacent to the fire protection district, coupled with personal contact work on the part of members of the organization, and distribution of educational pamphlets, has helped change the general attitude of the populace from one favoring woods burning to one where woods burning is frowned upon.

About 99 per cent of the fires are man-caused. Nearly 80 per cent of them are incendiary. Formerly these incendiary fires were set by many different people to "kill ticks," to "green up the grass," "open up the woods" and "destroy boll weevils," but, during the last few years, most of the incendiary fires have been set by a limited number of individuals who cannot be won over to the advantages of protection from fire, and who will have to be dealt with under the fire laws of the State.

Oklahoma has over 12,000,000 acres covered with one sort or other of forest growth. This comprises about 27 per cent of the area of the State and is situated principally in the Eastern portion, or the old Indian Territory. Originally about 4,000,000 acres were forested principally with short-leaf pine and oak, 1,500,000 acres were forested principally with oak and hickory, and, except for a few thousand acres of bottom land hardwoods, the remaining area was covered with a rather low type growth of black jack and post oaks. All but something over 600,000 acres of the short-leaf pines have been cut over at least once. Practically all of the remaining forest land has been culled or heavily cut over.

Fires continue to burn through all of the unprotected area outside of the Southeastern protective unit mentioned above. In the pine country they burn over each year from 20 to 50 per cent of the area; in the oak and hickory section about 60 per cent has been burned over in recent years. Out in the black jack and post oak country, most farmers burn off their woodlots so that a rather high per cent of this area is burned each year.

Considerable educational work with motion picture and slide shows has been done in the oak-hickory forests of the Ozark Mountains.

Oklahoma's lumbering industries have amounted to around $5,000,000 annually for the last several years and, in addition, nearly an equal amount of forest products, in the form of ties, posts, poles, charcoal, and other products, are taken from Oklahoma's forests.

Unfortunately, funds available for fire protection are not sufficient to afford protection for all forest land, but little over 10 per cent of the most highly productive lands being in the protected area.

Most of Oklahoma's forest land, by reason of its topographical conditions and low quality of soil, is suited only for growing a tree crop. It is important for the economic stability of Eastern Oklahoma that fires be kept from Oklahoma's forests and that these forests be raised to their highest production.

Analyzing Food Value of Fishery Products

Scientific Research Carried on by Fisheries Bureau in This and Other Fields Is Outlined

By JOHN RUEL MANNING
In Charge, Technological Investigations, Bureau of Fisheries, Department of Commerce

FISHERY technology makes use of the knowledge and principles of the sciences of engineering, chemistry, and bacteriology, to so improve and expand the manufacture and uses of marine products that the greatest economic value will result to the Nation. Consequently, the Bureau of Fisheries retains on its technological staff trained engineers, chemists, and bacteriologists to carry on research and prepare reports in connection with the various problems and investigations in this field of scientific activity.

Technological investigations of the Bureau of Fisheries cover a very wide and highly diversified field of scientific activity. Research activities are organized and are divided up into sections or projects of major importance to the industry and to the public at large. Such projects are the chemical preservation of nets and gear, studies of the efficient utilization of by-products of the fisheries and improvements in production methods with consequent elimination of waste, improvements in methods of handling and preserving fresh fish, and investigations of the nutritive value of marine products.

For many years, technologists of this Bureau have made scientific investigations of the efficiency of certain chemicals in prolonging the useful life of fishing nets and gear. From time to time, certain chemical formulae have been devised which have a marked preserving effect. Publications have been issued recommending these formulae, describing methods of preparation of these chemical treatments and most efficient means of of applying them to nets. While the best formula for this purpose has not yet been found and it is doubted whether any one chemical formula would be most efficient for every type of net in every locality, considerable progress has been made in devising formulae of value, and wherever these formulae have been used upon recommendation of the bureau, marked improvements in preservative effect have been demonstrated.

Until recent years, little attempt has been made to manufacture useful by-products from the waste accumulating in the various fishery food industries. Technologists of this Bureau have made in the past and are continuing to make engineering studies of the utilization of these products as valuable articles of commerce. These studies include improvements of existing methods of production and the designing of new methods.

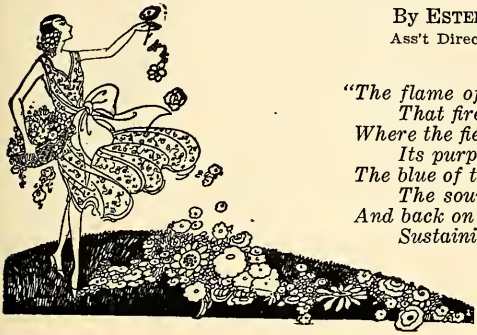
As a result of efforts of the Bureau and the industry in this field, such valuable by-products as fish meal, fish oil, poultry feed from oyster shells, fish scale essence, also commonly known as pearl essence, and other useful articles have found a ready market. The markets for these products have shown a steady expansion and improvement.

As an example of this, fish meal which formerly went into fertilizer stock, now has a more valuable use as an animal foodstuff and offers promise of introduction into the human dietary under the name of "fish flour." Fish oils which now find many uses in the arts and industries, such as in the manufacture of soaps, paints, and varnishes, etc., have been shown to be good sources of vitamins A and D and consequently have value in nutrition.

Improvements in methods of handling and preserving fresh fish deal with refrigeration, canning, smoking, salting, and drying. At various times in the past decade, technologists of the Bureau of Fisheries have studied these general methods of preserving as applied to fishery products. The Bureau and the fishery industries have always taken an active part in the development of modern methods of refrigeration and the handling of packaged frozen products. In fact, in many instances this has mounted to leadership, and other food industries have looked to the fishery

(*Continued on page 39*)

Some Wild Flowers of Louisiana



By ESTELLE VERJIE COTTMAN

Ass't Director, Bureau of Education

> *"The flame of the dogwood and sumach*
> *That fires the edge*
> *Where the field carries up to the forest*
> *Its purple of sedge;*
> *The blue of the monkshood and aster,*
> *The sourwood's wine,*
> *And back on the hills the unshaken*
> *Sustaining green of the pine."*

THERE SEEMS to be a mild stampede to the woods these days, to gather or transplant to the home garden the wild flowers of our State. Something or some one has brought the wild flowers into the spotlight. Is it because they are growing scarcer in the woods or is it because landscape gardeners have used our native plants and shrubs so effectively in beautifying parks and gardens? Whatever the reason, the garden magazines are urging us to bring from the nearest wood all the plants needed for a wild flower, or a rock garden, or for edging a lily pool, and the public in general is rushing to the woods, and taking up the plants, root, stem, and flower.

Spring in the pine hills

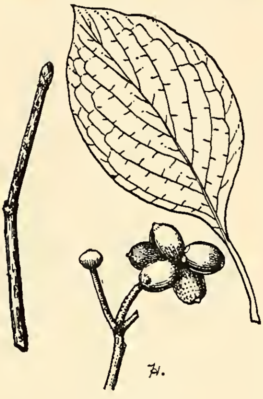
Many times those who take them are absolutely ignorant of the simplest means of making them live and thrive, so they either die at once, or linger on from day to day, only to succumb in the end—martyrs to the newly awakened interest in wild flowers. The thought of such destruction almost makes one regret that this interest has been aroused.

There is a ray of hope, however, in the activities of the various nature study classes and garden clubs. It is to be expected that the results of their study will show itself in more skillful transplanting and more careful matching in the home garden of the natural habitats.

Many wild flower enthusiasts have been disappointed in their gardens. Either the flowers have not grown as rapidly as they thought they should, or else the flowers have not been spectacular enough to please. One should remember that most wild flowers are not showy, at least for any great length of time. The greatest charm of wild flowers is the elusive quality of their beauty, and the dainty loveliness of such flowers as the trillium or wild clematis, can never thrill the person who admires only the flamboyant type of bloom.

Some of Louisiana's wild plants are capable of producing wonderful color effects. Even that most pestiferous plant—the water hyacinth — can transform a sluggish, muddy bayou into a scene of almost ethereal beauty, while the brilliant blue of wild flags along a country roadside in April, is something never to be forgotten. Speaking of irises, it seems that no other genus of the floral world has such garden possibilities. Its culture is simplicity itself, under all sorts of soil and climatic conditions.

The iris has been featured in poetry ever since Pliny, hundreds of years ago, wrote that iris is the Egyptian word for "eye," the name "iris" signifying the "Eye of Heaven." In Greek, the word means "rainbow" and in classic mythology, Iris—the rainbow personified — was a minor goddess, and one of Juno's messengers. All the poets, greater and lesser, have paid tribute to the beauty of form and color of the flag lily, also designated as "Rainbow" and as "Blue Iris." It is said to be the "Fleur-de-lys" from which comes the golden device on the flag royal of France. Louis, the Crusader King, adopted it for his emblem, and the "Fleur-de-Louis" finally became corrupted into "Fleur-de-lys." By some writers it has been called "Poor Man's Orchid," and "Orchid of the North," while a French botanist suggested the name "Rainbow Flower."

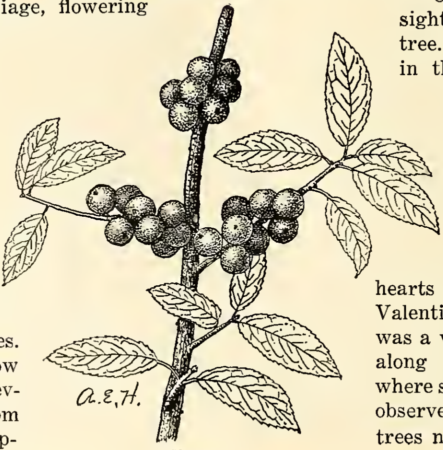


Dogwood

But the most beautiful tribute of all comes from Ruskin, who dubbed the iris the "Flower of Chivalry," and said that it has a "sword for its leaf and a lily for its heart."

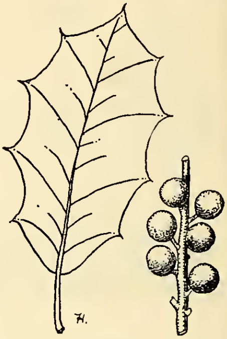
It is said that no other bloom ever approaches the iris in diversity of foliage, flowering heights, and range of color.

A new society has been formed in Louisiana, whose sole purpose is the propagation and cultivation of the Louisiana iris. It may surprise some readers to learn that Louisiana is now the iris center of the world—surpassing, in the number of its varieties, the world-famed group of Asiatic irises. The Louisiana flowers are now being ordered by practically every country in the world—from Australia, Alaska, the Philippines, as well as from all European countries.



Yaupon

Thanks to Professor Small, of the New York Botanical Garden, the Louisiana irises are being advertised far and wide. The leading garden magazines have secured illustrated articles on this subject, some pictures being in color, and for the coming months the "Louisiana iris will hold national and international interest," and the Louisiana Iris Society hopes to make the most of this interest to advance the propagation and cultivation of these lovely plants.



Holly

The Louisiana irises are varied in color and form. Some of the loveliest are the red and the pink, while the purple and the blue ones are favorites with many. The commonest sort that the writer has seen in her spring journeys over the State are the blue and the pale lavender.

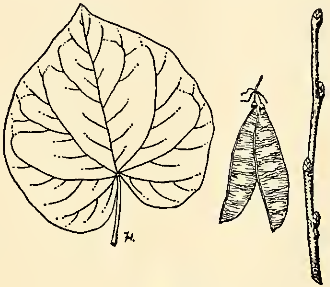
Wherever irises are found, they should be protected. Reclaiming of the broad areas where they grow in profusion destroys them by thousands. Garden lovers should bring as many species as possible into their garden, and thus help to preserve one of the most interesting and attractive of our wild flowers.

In early spring, traveling along Louisiana's smooth, wide highways, one is enchanted by the wealth of bloom and color that greets the eye. Truly, our State is a nature lover's paradise.

One of the very loveliest sights is the red bud or Judas tree. This small tree blooms early in the spring, and the reddish purple, pea-shaped flowers are borne in profusion along the twigs and branches, and appear before the leaf buds unfold. When the leaves do appear, they are bright green and such perfect hearts that they might serve as St. Valentine tokens. Last spring there was a wealth of red buds flowering along the Hammond Highway, where some exquisite lilac tints were observed. The writer also saw many trees near Pollock, La. This specimen, under favorable conditions, becomes a low and very shapely tree. It is easily transplanted, and should be in every park and garden.

The azalea is another of our delightful spring wild flowers. It is a beautiful pink color, darker toward the base of the tube, with stamens and pistil a light crimson. The blossoms are delicately fragrant, and grow in small terminal clusters, expanding before the leaves appear, or else developing about the same time.

Since garden lovers have not known exactly what kind of soil was necessary for the successful cultivation of wild azaleas, they have been much discouraged because their plants did not thrive, and many have abandoned their efforts to transplant them. Recently, however, thanks to the scientific efforts of the U. S. Government, it has been learned that azaleas cannot thrive except in an acid soil. The secret of their successful culture lies in acidifying the earth with aluminum sulphate, which may be applied in two ways—dusted over the surface and mixed with the soil, or dissolved and applied as a solution. The azaleas usually found in Louisiana are the pinxter flower, commonly called "wild honeysuckle," and the charming white azalea which is plentiful in our swamps.


Redbud

This wild azalea is the "Pinxter bloem" or Whitsunday flower so beloved by the Dutch colonists. It is said that long ago our azaleas were sent to the Old Country, there crossed with other species, and sent back to us in the hybrid form of our gloriously colored cultivated plants. These plants lose their leaves in winter; but several years ago at the Carnival season, the Courtyard of the Arts and Crafts Club was a riot of color produced by cultivated azaleas, in perfect leaf and flower.

The azalea was the national flower of Flanders, and McEllwanger says of the Ghent azaleas that they have no parallel in coloring among other flowers, such tints only being found in opals, sunset skies, and in autumn woods.

There should be a spot in every garden for these beautiful flowers, both the wild and the cultivated varieties.

One of our most attractive spring flowering shrubs is the so-called "flowering dogwood" which is found all over the State. It really grows into a small tree, with a flat spreading crown. It flaunts its lovely white petals—which are not petals at all, but four petal-like bracts—in woodland thickets, sometimes as early as March, and sometimes as late as May. It is well adapted for planting in the home garden, in parks, and for roadside beautification. It will not grow under unfavorable conditions, but must have a well-drained soil, preferably sandy. The surface soil should not be allowed to dry out or pack, but should be kept well mulched, for the roots are shallow.

Even when not in flower this is a most attractive shrub. The leaves, in the spring a lovely foil for the white flowers, color beautifully in the fall. The wood is hard—so hard that it is "horn-like," hence the name cornus. The inner bark was once used as quinine is used, and was considered a specific for jaundice. It is said that the Louisiana Indians smoked the dried bark for its tonic effect.

Surely we must pay tribute to the beauty of the wild morning glory. Light pink, with white stripes or else all white, its pretty bells glorify the fence corners and stumps. Borne on a vigorous vine, which climbs so rapidly that it can encircle a good sized branch in a short time, it binds together the twigs of its support in lace-like-green. It is called variously "Bind Weed," "Bell Bind," and "Lady's Nightcap." It closes at sunset, after its pollinating hours are over, but one authority states that it remains open on moonlight nights for the express purpose of entertaining certain moths. These flowers flourish in Louisiana. They laugh in the sunshine, and color the early dawn. Someone has said that they are the first to greet the sunrise and the last to bid the day adieu. Have a care in transplanting them! Tough pulling tears the roots and breaks the delicate tendrils. They also often die from lack of watering, dry roots being their death warrant.

One has only to look out of the window of the train, as it hurries through the Louisiana marshes in late summer, to see the large, clear, rose-pink swamp mallows growing close to the tracks, their roots in the marshes. They are tall plants, from four to five feet high, with long green leaves, downy underneath. They love such places as riverside, lake shores, and brackish marshes. They seem to like to mingle with the tall sedges and "Cattails." They are easily shifted to the home garden, if one can manage to wade out to them, and to get several good strong roots to transplant. It is a curious fact that though their natural habitat is in saline soil, they will thrive under cultivation if set in good rich earth, well moistened.

Their flowers are as beautiful as those of their cousins, the hollyhocks, which are natives of China. Another Chinese variety is "The Rose of China," cultivated here by florists. The petals of the flower are used by the women of that country to stain their teeth black, and in the West Indies the flower is crushed and used for blackening shoes, it is said.

It is impossible within the limits prescribed to do more than touch upon a few of the loved wild flowers of our State. Each one carries with it an interesting life history, deserving the utmost consideration; many, indeed, are worthy of songs or poems setting forth their loveliness; but one must leave these for attention at some future time and mention only some of the most outstanding ones.

One cannot omit that "cloth of gold" flower, the goldenrod, any more than one can pass over the jolly black-eyed Susans. Within Louisiana there are several species of the eighty-five goldenrods that flourish in the United States.

Several varieties have wandered into Mexico and South America and some have been carried to Europe, where they are carefully cultivated in Old World gardens. Here, nature has been so lavish that one does not even have to go to the outskirts of New Orleans to find the lovely yellow spikes waving in the breeze, for vacant lots everywhere are gay with the golden clusters studded with hundreds of tiny florets. These united florets advertise much more conspicuously than could a single flower, and can be seen by insects a long way off. Almost all of the composite plants live in large groups, each aiding the other in attracting the insects that collect both pollen and nectar. Blanchan has called goldenrods "popular restaurants," because they offer such a tempting and bountiful table to the visiting wasps, bees, flies, and beetles, who pay for their feast by cross pollinating the blooms.

Goldenrods are beautiful held in the hand. They are a vision of loveliness arranged in pottery vases or in copper bowls, but they are surely at their finest and most splendid best in the fall, in wide colonies, with a background of oaks and pines to set off their golden splendor. Some one has stated that the goldenrod should be the national flower because it is native, common from coast to coast, hardy, beautiful, and one hundred per cent American.

Like the goldenrods, some of the Black-eyed Susans have become prime favorites for cultivation in the Old World. It is said that the lady, a native of the Western clover fields, reached Europe in a bale of hay. In America, she has rather a bad reputation, and is classed as a very undesirable "weed." Again, like her composite neighbor, the goldenrod, she offers bees, butterflies, and beetles, such hospitable entertainment in the way of nectar and pollen that she is sure to flourish for years to come. Here in Louisiana she is called "niggerhead," but in other localities she is known as "yellow" or "ox-eye Daisy" and "Golden Jerusalem."

One's most vivid recollections of picking wild flowers hover around the common blue violet found everywhere in early spring. It has heart-shaped saw-toothed leaves, and five petaled bluish-purple flowers—golden hearted—like tiny elfin faces. Who has not been fascinated with the little bushy, white mustaches which keep out all undesirable marauding insects who would purloin the nectar within, only allowing the favored bee with its long tongue, seemingly built for this very purpose—to extract this delectable sweetness? Who has not carefully plucked away the colorful corolla in order to see the "old man with his feet in the foot tub?"

The downy yellow violet is usually borne on a single stem and loves the dry spots in the woods; while its sister, the smooth yellow violet, has numerous leaves at its base during its flowering season, and prefers a moist soil. Bryant once wrote a poem to the yellow violet with more poetic "fine frenzy" than botanical knowledge, calling it the *first* spring flower, which it certainly is *not*.

Perhaps the white violet is the general favorite. This variety is usually purple veined, beardless, and loves the damp mossy places. Here the insects find no mustaches to bar their way and can follow the path of the veins down into the honeyed center.

Sprengel, who made the most exhaustive study of the violet, says that the violet hangs its head, not from modesty, but to keep out the rain, and to let the pollen fall in the right place to most easily pollenate the flower; in fact, the whole structure of the violet seems to be based solely upon that idea.

A writer in *Nature Magazine* explodes the idea that the violet is shy and modest, claiming, on the contrary, that it is brave, persevering, and independent. He declares that it scorns both the cold and the heat, climbs the Rocky Mountain heights and descends into the Southern marshlands; that it perseveringly travels from Labrador to Florida; that it is independent, for the woodsy blue violet can take care of its own fertilization should stormy days come, and its friend, the bee, fail to bring about pollination. We think the writer has proved his case.

With such wealth of beauty and production, it behooves the people of Louisiana to guard and protect their wild flowers. Many factors are combining to bring about a diminution, if not actual disappearance, of our native plants, some of which cannot be avoided. Among these are encroaching civilization, opening up of farm lands, drainage and reclaiming of swamps, and cutting of timber. To balance these forces, we must protect the plants wherever they are left. There are many waste corners not under cultivation. Many swamps in Louisiana are not drained, and many stands of timber still remain. Such places are the homes of many wild flowers, each species having its own particular habitat, for marsh flowers cannot grow on prairies nor shade-loving plants thrive in the glare of continued sunshine, although it is remarkable how some of the flowers have adapted themselves to changing conditions and different environments.

Aside from the wild flowers that are transplanted to home gardens, pressed collections are being made by schools, colleges, camps, and clubs, and individuals have the collecting mania so well developed that they strip the countrysides and swamps to add to their collections and to exchange with fellow collectors.

Another cause of diminution of our wild flowers is constant picking. Some wild flowers can hold their own under such treatment but some of them cannot. Many are perennials and grow from the root stock, and picking doesn't harm them very much, unless too much foliage is taken. On the other hand, where would the seed of the annuals come from if all the flowers were picked? There are a few nation wide rules for picking wild flowers which every one should know and observe, such as "Never Collect One Unless Three are Seen Close By," and "Never Collect a Root Unless There Are Ten In the Root Cluster." You may laugh at these slogans; you may say that there are hundreds left, but what about those who follow you and say the same thing?

Some one has suggested that the great outdoors be regarded as a huge living room belonging to all. In our homes we have beautiful pictures and rugs. We do not deliberately destroy these, so why should we destroy the beautiful carpets and hangings which Nature has provided for our delight and pleasure?

Plants are really perfected mechanisms, with wonderful systems developed for their maintenance, and each part has its own special work to do for the plant. The root anchors the plant firmly in the soil and draws up moisture. A plant—

"Whose hungry mouth is pressed,
Against the earth's sweet flowing
breast,"

depends largely upon its roots for life and nourishment. Often when picking such fragile plants as the wild violet, the little shallow roots are lifted entirely out of the ground, spelling disaster for it.

What about our blue irises? And our water lilies, that are stripped from our lakes and streams by the hundreds? One lily in a bowl is lovely, an arm load in a vase is anything but beautiful.

Our dogwood is the most common sufferer. Every spring finds autos practically obscured by the lovely branches that the picknickers have literally torn from the shrubs. In a few hours, when the leaves have wilted, and the flowers have drooped, the branches are tossed out of the car, forgotten, disdained, and a poem of beauty is changed to a mass of shapeless debris. One small branch, with stem kept fresh in water in even so small a container as a pop bottle, hours later could have filled a sick room with beauty.

What crimes are committed in the name of Christmas decorations! The ruthless destruction that is carried on in Louisiana woods at this season is truly appalling. Young holly and yaupon trees are literally torn to pieces to satisfy the demand for Christmas greens. Even teachers are not entirely blameless in this respect. They send their pupils into the woods for boughs for school decorations, and never seem to recognize the havoc that is wrought, with their knowledge, if not with their actual permission.

But there are hopeful signs today. One thing that is aiding the conservation of wild life is the increasing number of newspaper cartoons and editorials on wild flower vandalism.

Fifteen states have passed laws for the protection of their native plants. Unfortunately, such laws are difficult to enforce, and so have little effect upon the situation. It is education that is needed. Education to precede legislation. We are fortunate in having our Louisiana Nature Guardian organization, which pledges its members to abstain from harming the plants and flowers of the State. The Guardian Clubs in the State should use every opportunity to stamp out the wholesale wrecking of trees and plants. Newspapers and periodicals should lend their influence to the cause, and every thinking person should organize himself into a committee of one to conserve Louisiana's wild flowers.

Interstate Compact for Stabilizing C

Three-point Program Outlined in Address Before A
of Conservation and E

A THREE-POINT program for stabilization of the oil industry has been proposed by the Secretary of Commerce, Robert P. Lamont, in an address before the American Petroleum Institute.

Mr. Lamont suggested coordination of State production by an interstate compact, uniformity of conservation principles by a compact or otherwise, and equation of foreign and domestic production by a joint Federal-State board created by the compact. All these, he said, "can be accomplished just as quickly as necesity demands."

The seven major oil-producing states, Mr. Lamont said, bear a peculiar relationship to the Nation and they must prevent waste through their police power, which is not possessed by the Federal Government. There is a growing consciousness, he continued, that the oil states hold this power in trust for the Nation, because any one of four states can directly damage a nation-wide industry.

The program suggested by Secretary Lamont, he said, is not so much an invention as a restatement of ideas that have been "soaking in" for five years.

His address follows in full text:

During the past five years a new movement has taken form in the oil industry. It is not an exaggeration to say that its success or failure may determine whether the producing branch of the oil industry continues as an individual business, if the new movement succeeds, or comes ultimately under closer Federal regulation, if the present effort fails. That movement is the plan for cooperation between the producing States. It may be of service to show the background of that effort, to indicate how far it has gone, and to point out what we hope can be accomplished by it.

Before going back over the last five years, it is well to point out certain present-day conceptions of the relationship of the State and the National governments to the oil industry.

First, the national interest deserves emphasis. For instance, in the matter of national defense: Of 291 seagoing vessels in active service in the Navy, 281 are oil burners.

The Army and Navy between them have about 2,800 planes in commission, all using petroleum products. About 80 per cent of the horsepower of all prime movers of the country, fixed and automotive, is generated by oil and its products. There are about 26,000,000 automobiles registered or in present use, representing an investment by our citizens of about $18,000,000,000.

The 48 consuming States in 1930 collected more than $494,000,000 in gasoline-sales taxes, quite aside from the crude oil production-taxes realized by the producing states. The consuming states collected almost exactly the same amount for each gallon of gasoline—a weighted average of about 3.77 cents—as the oil industry did for all its work from the well through the refinery, since the average refinery price of gasoline was about 3.5 cents.

The 300,000 oil wells which are responsible for the steam of our warships, the flight of our airplanes, the financing of our highways, and the turning of 80 per cent of all our wheels, are most vital factors in the social and economic life of this modern machine age.

There is a national interest in the production of oil from these wells which goes to the foundation of the relationship of the government to the citizen.

But these wells are concentrated in a few states: 97 per cent of our production comes from seven States. All but 10 per cent comes from privately owned land. If the supply falters, the Nation suffers its lack; if the supply overflows, the Nation suffers because its irreplaceable oil and gas are driven into wasteful uses. If gas is wasted either above or below ground, a hundred and twenty-five million Americans suffer a threefold loss: First, because the gas generates no steam; second, because it will never bring oil to the surface; and third, because the oil which is left behind—robbed of its gas content—becomes difficult, if not impossible to recover.

It is a strange thing that, despite the Nation's vital dependence on oil, its production has been almost entirely unaffected by Federal regulation. Our present-day conception of the re-

Industry Proposed by Mr. Lamont

rican Petroleum Institute Also Calls for Uniformity alization of Production

lationship of the Federal Government to the landowner, his well, and his lessee is one of remoteness. There is a growing movement for Federal regulation of interstate oil and gas movements, but the well itself, under our present laws, is as remote from Federal contact as though it were located in another country.

Only in war time have the two come into conscious relationship, and then it has been a relationship of collision. This lack of contact between the oil well and the Government may or may not be desirable. I point it out simply to emphasize what follows.

Our seven major oil-producing states bear a peculiar relationship to the Nation. If waste occurs, the producing State must prevent it with a power which it is assumed the Federal Government does not have—the police power. There is a growing consciousness that the oil States hold their police power in trust for the Nation.

Any one of four states can directly damage a nation-wide industry, impair the tax structure of every State, and indirectly imperil the national defense, by a disregard of this trust. If the trusteeship is wisely administered, there is not likely to be sufficient popular pressure for transfer of the power to the Federal Government. If the national interest is selfishly disregarded, and the American people ever become conscious that the mad wastes of the past are being continued, you and I may live to see the oil industry in a legislative strait jacket which it should not deserve.

Five years ago, however, there began this movement of which I spoke, looking toward an exercise of the trusteeship of this oil-producing minority of our states through concerted action among them.

In its 1926 report, the Federal Oil Conservation Board outlined a plan for cooperation among the oil States, by compact or otherwise, looking toward uniform laws and correlation in their enforcement. In 1929 the idea was led by the Chairman of the Board before a conference called by the President at Colorado Springs, and it was at least informally approved there by the Governors of four oil states.

In 1930 the Board, as an aid to correlation of regional supply to regional demand, began a series of forecasts of demand and recommended supply, which, through either skillful prediction or through their use as guides, have hit within a few per cent of accuracy.

The most significant development of this idea of correlated state action has come in 1931, and it is solely because this tendency has gathered force that the oil industry today can face the future with more confidence than at any time in the last five years.

In April of this year the Oil States Advisory Committee, appointed by the government of 10 States, laid before the Federal Oil Conservation Board a program calling for an agreement among the oil producing States, under which each State, while retaining administration of its own resources, would enact uniform conservation laws, coordinate their enforcement with those of other States, and co-operate through an interstate advisory board, which would balance State production quotas and help in the correlation of such quotas with foreign production.

The Federal Oil Conservation Board gave its formal approval; such a program was directly in line with its own efforts.

In September of this year, the first practical step toward carrying out this program was taken. The Public Service Commission, of Kansas, the Oklahoma Corporation Commission, and the Railroad Commission of Texas met jointly and agreed upon a production quota for each oil state which would balance supply against indicated demand. California, New Mexico, Colorado, and Wyoming have adhered. A schedule for foreign production was likewise recommended.

Thus, after five years' evolution, we have the beginning of a solution. It is only a beginning. But this evolution has at least brought the industry to the edge of, if not out of the jungle, even if it is still traveling with some difficulty; perhaps if we continue on the same path we may find our way to the open road leading to a satisfactory permanent solution.

I wish, therefore, to propose to you presently a plan which is not so much an invention as a restatement of ideas that have been soaking in for these five years. Before stating it, I want to point out how far from a permanent solution we still are.

Our production problems fall into two classes —first, stabilization of supply from the various states, and second, the elimination of waste within each state. The stabilization problem includes at least five major items

First, there is no machinery for scientifically predicting the reasonable market outlet for a state's fields in relation to production from other states. So far, the voluntary efforts of committees of the American Petroleum Institute and of the Federal Oil Conservation Board have been the only guides; these have been available only a short time, and no state is bound to pay any attention to them.

Second, there is no machinery for committing a state to observance of a reasonable production schedule so that its neighbors may plan their own with any assurance. The gentleman's agreement between Oklahoma, Kansas, and Texas now in force shows how important a factor such correlation can be.

Third, there is no Federal or state legislation which attempts to regulate the extension of pipe lines into new fields. If there were, much of the unnecessary oil which gluts interstate commerce might be excluded.

Fourth, there is no machinery in existence for correlating domestic production and foreign prodution, to ensure that domestic curtailment will not be offset by increased foreign production. to the detriment of our markets. As long as competing foreign fields are generally unit-operated, and our own are not, any difference in production costs will be borne either by our consumers, if they use American oil, or by the more costly producers if foreign oil replaces their product.

Oil once produced will find a market; foreign oil will compete in our market abroad or here. Our best hope, until we put our house in order through unit-operation, lies in international agreements for restriction of production. But the Federal Government can not make such an agreement because it lacks the police power to enforce it in any state; and no state may make such an agreement—first, because of the constitutional prohibition against foreign treaties, and second, because if made, the state could not enforce it against its neighbor within our Union. The remedy is suggested later in this paper.

Fifth, there are specific Federal statutes which prohibit agreement among importers or between importers and domestic interests for the restriction of imports, and prohibit agreements in restraint of interstate commerce.

The above are the difficulties in the way of stabilization, which is our pressing production problem.

But there are problems of another class; i. e., the prevention of waste within a state, which must ultimately be met. For instance:

First, we have as yet no adequate control over new drilling. Until some state passes a statute which vests in the state the discretion to deny a man the privilege of drilling an oil well which will waste the contents of a common reservoir, and compensates by allowing him to share his neighbor's production and his costs, we are attacking the disease after allowing the infection.

If the troubles of this industry had to be summarized in one word, "overdrilling" would be that word. Every state has some provision for licensing of drilling, but most of these state statutes are merely gestures. Minimum spacing of wells as in California and Texas, and restriction on production in proportion to the acreage per well, as in Louisiana, are as close as any state statute has come.

Some municipalities, such as Oxford, Kans., have successfully gone farther. So far only one govermental agency has successfully put a stop to unneeded new drilling—

The United States on its own lands, under the conservation order of March 13, 1929, prohibiting issuance of further prospecting permits, and extending existing permits only on deferment of drilling.

Second, unit-operation is so obviously the one method of adapting the fictitous checkerboard of surface control to the actual unity of the underlying reservoir that the hesitancy to promote it would be inexplicable if we did not know the individualistic background of the industry.

So far, no state has attempted compulsion of unit-operation; but the possibility is by no means remote. While only three states—California, New Mexico, Wyoming, and the United States on its public lands, have laws specifically authorizing unit-operation, the only obstacle to unit-operation in other oil-producing states is the possible interference offered by state antitrust laws. However, there is good legal opinion to the effect that agreements for unit development do not violate these state laws.

Third, only one state—Oklahoma—has set up a state regulatory body with specific power to fix a state production quota, based on market demand, and to allocate production as between different fields, and the constitutionality of this power is now before the Supreme Court of the United States. However, even in the event of an adverse decision in the Oklahoma case, there is always the possibility that a similar California statute, drawn at a later date and now suspended by a referendum petition embodies important differences from the Oklahoma statute that may lead to its upholding.

This statute may then serve as a model for future conservation legislation. Texas has specifically refused her Railroad Commission the authority to take economic waste into consideration, or equate production to market demand. Arkansas and Louisiana prohibit discrimination by a gas purchaser in favor of one field against another.

In all other states—Kansas, Texas, Arkansas, Louisiana—where there is a state-directed effort to balance oil production with demand, the statute provides only for proration of the state against its share of the national demand, nor allocation of production as between competing fields within the state.

Fourth, while eight states have statutes prohibiting the blowing of gas into the air, five states have statutes specifically allowing it, if necessary to operate an oil well.

Fifth, only four states—California, Kansas, Michigan and Texas—have laws prohibiting operation of a well at an excessive gas-oil ratio, or in such a manner as to waste gas energy.

Sixth, only two states—California and Texas—have laws defining as waste the use of production methods which leave an unreasonable quantity of oil unrecoverable in the ground.

Having stated some of our present deficiencies, I shall present here a plan or rather a restatement, of three fundamentals which are designed to point a way onto firmer ground:

First, provision should be made by interstate compact, approved by Congress, for putting on a permanent basis the periodical forecasting of demand, the setting of state production quotas to meet that demand, and enforcement of such quotas, all of which are now being undertaken informally by the regulatory commissions of Oklahoma, Kansas, and Texas under the agreement of Sept. 13. Such a compact should create a permanent interstate advisory body, formally recognized, which could perform functions of coordination. Enforcement within each state would rest with the state regulatory body constituted by its own laws.

Second, state laws, which are uniform in principle if not in detail, are ultimately needed within the compacting states. These might well include, among other things, provisions (1) prohibiting drilling or the extension of pipe lines into new fields without a showing of public convenience and necessity; (2) requiring wide spacing of wells; (3) prohibiting waste of gas and gas energy both above and below ground; (4) fixing minimum gas-oil ratios; (5) authorizing regulatory bodies to require ratable taking within each field and between competing fields; (6) authorizing unit-operation; (7) and giving the state regulatory body broad powers to require production methods which will ensure maximum recovery from the ground. One function of the interstate advisory board should be to draft and recommend such laws from time to time if the compact itself does not outline them. But the coordination of various state production programs is a more pressing matter than uniformity of state laws; the first objective of a compact should be to get the states to cooperating on a permanent basis. Uniform laws, when adopted, might reasonably go beyond the production stage and aim at correction of the demoralized marketing methods of the industry, but that is beyond the scope of the present discussion.

Third, as recommended by Secretary Wilbur, a joint Federal and state fact-finding body for arriving at an equation of domestic and foreign production and imports should be created by the compact of the states and with the approval of Congress. This joint body might be authorized to negotiate with foreign producers and assist in negotiations with foreign governments. Its state members might be also members of the interstate advisory board so that the agreements made could bring the states' police power directly into play for their enforcement.

Federal participation, in the long run, is essential for the protection of the consuming public.

This three-point program—coordination of state production by an interstate compact, uniformity of conservation principles by a compact or otherwise, and equation of foreign and domestic production by a joint Federal-State board created by the compact—can be accomplished just as quickly as necessity demands.

It is to be hoped that the beginning made by Oklahoma, Kansas, and Texas, which is a tem-

(Continued on page 40)

Louisiana Nature Guardians

"Upon my honor, as a Louisiana Nature Guardian, I promise to take care of all our natural friends, to guard and protect them to the best of my ability, and as far as possible influence others to do the same."

ESTELLE V. COTTMAN, *Editor*

WHEN the Nature Guardian Club of Louisiana was formed several years ago, it met an instant and hearty response from the teachers and the school children all over the State. From a small interested group it has grown steadily into a mighty force of thousands of young conservationists. These children are the proud possessors of handsome lithographed badges, and certificates of membership. New Clubs are being formed each week and it is the purpose of the Educational Bureau to enroll every Louisiana boy and girl, white or colored, under the Nature Guardian banner.

HOW YOU CAN BECOME A NATURE GUARDIAN

YOUR PART

Consult your teacher.

Ask that the purpose and plans of the Nature Guardian Club be explained to you and the class.

Ask for an application card.

Get a responsible person to indorse it, after proving that you fully understand the duties of a Nature Guardian.

Sign the application and mail the card postpaid, or give to your teacher, to send with cards from all the class.

OUR PART

We send the application card.

We send you a handsome badge, a certificate of membership, Nature Guardian pamphlets and other literature.

This is all free, and is carried on with the purpose of instilling in the children's minds a knowledge of Louisiana's wild life and a thorough understanding of its economic value to the State.

It also aims to develop individual humanitarianism. Even within this short time an amazing improvement has been made in the mental attitude of our young folks toward the conservation and protection of Louisiana's natural resources.

EDITORIAL

MY DEAR GUARDIANS:

I wonder if you know your power and influence upon others! Even the youngest among you exerts an influence upon his little playmates, and you older ones are constantly leaving your stamp upon your companions' thoughts and actions. That is why we are so anxious to have that influence strong for the betterment of all matters pertaining to the protection of Louisiana's birds, animals, trees, and other natural resources.

There are those among you who are prone to think you will be more valuable in such a compaign at some future time—when you enter high school, or when you go to college. The moment for such activity is here and now, TODAY is YOUR DAY! As David Starr Jordan says so beautifully in his "The Philosophy of Despair":

> "Today is your day and mine; the only day we have; the day in which we play our part. What our part may signify in the great whole we may not understand; but we are here to play it, and now is our time. This we know, it is a part of action, not of whining. It is a part of love, not cynicism. It is for us to express love in terms of human helpfulness. This we know, for we have learned from sad experience that any other source of life leads towards decay and waste."

So today, dear Guardians, is yours, to remember your pledge and to preach the gospel of conservation to all with whom you come in contact. May your message bring fruitful results, is the wish of

THE EDITOR.

THE KINGFISHER

Here is Geo. Lowery, Jr's description of the Kingfisher:

The many bayous, lakes, and wooded streams of our region are the chosen haunts of the kingfisher. Silently on some limb protruding above the water he perches, alert for food or foe. Should one approach, he remains until his danger line is reached, and then drops from his perch and with a loud rattling call flies on ahead. Follow him further and each time the same performance is repeated, until at last the extremity of his wanderings is reached, and he makes a wide detour back to the starting point. These antics earn for the bird the local name of "fly-up-the-creek."

As a fisherman, the kingfisher deserves his title. In his manner of feeding he is like the osprey or the fish hawk. Suddenly we see him stop in mid-air, hovering on swiftly beating pinion, then drop like a plummet into the water below. Whether the catch is made or not, you can depend on the loud, harsh, exultant rattle following, likened greatly to the sound produced by the fisherman winding up his reel after a cast.

The bird is strikingly attractive in coloration as well as manners and personality. The male has a breast band and sides blue-grey, like the back, while the female has chestnut-colored sides and a breast band in addition to the grey band. Here, then, is one species of bird where the female is more handsome than the male.

The birds burrow into clay and sand banks several feet, where at the end the tunnel terminates in an enlarged chamber in which five to eight glossy white eggs are laid upon the ground. I am told that occasionally kingfishes will nest upon the bare ground in swamps, but I have been unable to make any personal observations to that effect. In fact I have not yet seen notations of that unusual nesting habit in the writings of other ornithologists, and am dubious as to the veracity of the reports.

"Among the noblest of the land
Though he may count himself the least,
That man I honor and revere
Who, without favor, without fear,
In the great city dares to stand
The Friend of every friendless Beast."
—*Longfellow.*

Janice, we are happy, indeed, to hear that you are doing such fine work. You and Leota are an inspiration to all the Guardians! Write to us soon, and tell us how your Club is progressing.

Carencro, La.,
Dec. 23, 1931.

Nature Guardian Editor,
Department of Conservation,
New Court House Bldg.,
New Orleans, La.

Dear Editor:

I am already a Louisiana Nature Guardian and wear my badge with great pride. Leota Prejean is one of my friends who has already joined. She and I are getting up a Nature Club and would be very glad if you would send us some application cards. We are working very hard in organizing our Club. We hope it will be a success. We will elect our officers for the Club and we will have some poems, letters, and themes for you to print.

Will close hoping you will mail me the cards as soon as possible.

Respectfully yours,
Janice R. Francez,
Carencro, La.

Here is a poem from one of our Guardians:

Tallulah, La.,
Nov. 16th, 1931.

Nature Guardian Editor,
New Court House Bldg.,
New Orleans, La.

Dear Editor:

Here is a little poem that I think would be of great interest to our Club.

DON'T MURDER TREE

Ye tree killers, are these your pranks,
To murder trees and give God thanks?
Desist, for shame, proceed no further,
God won't accept your thanks for murder.

A Guardian,
Ida M. Caffrey.

I am sure we would all like to have a dog like this one, owned by Patrick, Anthony, and Gerald Breaux:

New Orleans, La.
Dec. 10th, 1931.

Nature Guardian Club,
New Court House Bldg.,
New Orleans, La.

Dear Editor:

I feel sure that you will pardon us for not sending in our application cards before now, but we have been so busy with our lessons and school that we neglected to send them in, but we will do better next time.

We would like to tell you about our pet dog. He is a fine big fellow—a German police, and weighs 67 pounds. He is a very smart dog and can do anything but talk. He is our sole protection. We need no gun with him because he is as faithful as a clock. He is a fine swimmer and enjoys the water with us, and above all he sure loves us and watches over us. Oh, how I wish you all could see him. I just know you would want him for your very own. We love all animals, anld try to be kind to them all, because they are our faithful, dumb friends.

Hoping you will forgive us for not answering before now, we remain,

Yours loving little boys,
Patrick, Anthony, Gerald Breaux,
420 Third Street,
New Orleans, La.

We are always glad to welcome our St. Louis friends into the Club as honorary members. So come in, Glennon!

St. Louis, Mo.,
Dec. 10, 1931.

Nature Guardian Club,
New Court House Bldg.,
New Orleans, La.

DEAR EDITOR:

We have a conservation club in St. Louis, but I am too young to join, but my daddy comes from Louisiana and I think I would like to hear from his mother state. I live out in the country near St. Louis and love all the wild things. I am learning to fry fish.

My Uncle Joe gets his book every month and I would love to join your wonderful club, too, and get the Louisiana Conservation Review. My Uncle Joe says it's as good as the Izaak Walton of America.

Please send me an application blank.

Yours sincerely,

GLENNON CROWLEY,
736 Bayles Ave.,
St. Louis, Mo.

Please send me the Dec. Review book.

Here comes Edward knocking at the door. We are sure we met Edward and his sister at Delhi's Wonder Folk School last summer.

Delhi, La.,
Dec. 8th, 1931.

Nature Guardian Club,
Dept. of Conservation,
New Orleans, La.

DEAR EDITOR:

My sister and I would like to be Nature Guardians and join your Club. We will do all we can to protect nature, especially birds. Send our application blanks and we will return them as quickly as possible.

Yours truly,

EDWARD COX,
EDITH COX,
Delhi, La.

We are glad to print Emanueline's little poem about her bird.

Marksville, La.,
Dec. 3, 1931.

DEAR EDITOR:

I am sending in what I have written. I would be glad to read it in the "Conservation Review."

I am a member of your "Nature Guardian Club."

Sincerely yours,

EMANUELINE MOREAU,
Marksville, La.

MY BIRDIE

Once I saw a birdie fall out of a tree;
When I went near he frightened me.

I picked him up and bandaged his wing,
When he was getting well he began to sing.

So I put him near the window with a ribbon of blue,
Away went my birdie with a ribbon of blue.

I looked for the rest of the year round,
When I did not find my birdie, I began to frown.

I looked and looked although I was blue,
And down came my birdie with a ribbon of blue!

—EMANUELINE MOREAU,
Marksville, La.

(Student of 6th grade, Marksville High school).

Welcome Dick and Jesse! Let us hear from you often.

Shreveport, La.,
Dec. 30, 1931.

Editor, Louisiana Nature Guardians,
New Court House Bldg.,
New Orleans, La.

DEAR EDITOR:

My friend and I would like to become members of the Nature Guardian Club. Please send literature and application cards.

I am a boy 15 years old and in the ninth grade. My friend is 10 years old and is in the fifth grade. We are interested in wild life and especially birds; we build boxes every year and birds always build in them.

When we become members of the club we will write again.

Yours truly,

DICK PAYNE
JESSE BOATWRIGHT

Here are the names of some new Guardians, whom we welcome heartily into the Club:

J. C. Brown
Mitchell, La.
Robert Patrick
Converse, La.
Clark Heard
Converse, La.
Pauline Anderson
Converse, La.
Curtis Toney
Franklinton, La.
J. Donice Yates
Franklinton, La.
Norma Stratton
Lillie, La.
Myrtis Gardner
Lillie, La.
Tressie Hufstetlen
Many, La.
H. Q. Pugh
Many, La.
Kathleen Fletcher
Many, La.
Jack Hollis, Jr.
Many, La.
Herbert Woods
Montgomery, La.
Clarence Teagle
Montgomery, La.
Rosezetta Gash
Morgan City, La.
Melvina Zade Bates
Morgan City, La.

Albert Miner
Morgan City, La.
Sybil Thomas
Coushatta, La.
Fannie Lee Land
Castor, La.
Oswald Pepper
Ringgold, La.
Rufus Kennedy
Ringgold, La.
Hardie Thorton
Ringgold, La.
Millard Baley
Ringgold, La.
Hattie Maude Taylor
Shreveport, La.
Charles Rothenberger
Shreveport, La.
Dorothy Hewett
Shreveport, La.
Ottis Ivey
West Monroe, La.
Elizabeth Boone
Winnfield, La.

Bernis Plunkett
Montgomery, La.
Billie Nell Spikes
Montgomery, La.
Louise Lesyones
Montgomery, La.
Aby Feazell
Montgomery, La.
Thomas Lewis
Montgomery, La.
Trent Williams
Montgomery, La.
Elsie Mae Rike
Converse, La.
Doris Dupree
Coushatta, La.
Bernard Schram
Shreveport, La.
Rubye Wreyford
Coushatta, La.
Wilmer Ray Booth
East Point, La.
Guy Bevill
Montgomery, La.

We shall be glad to hear from our members at any time, and shall be glad to print their poems, themes, and letters about any of the natural resources of Louisiana. We hope that our next issue will contain many interesting articles by members of our Club.

Address all letters to: NATURE GUARDIAN EDITOR, DEPARTMENT OF CONSERVATION, New Court Building, New Orleans, La.

THE SERVICE OF THE TREES

"Homes!" said the forest, shagging the range,
"Lintel and floor, roof-beam and door,
Homes we build and deserts we change
To cities that smoke and roar;
Steel and stone may come to their own,
But first we shaped and prepared for these.
We raise the world, who are overthrown,
We rise and toil!" said the trees.

"Ship!" said the forest, tossing its plumes
"The weltering tide we master and ride;
Oceans and smoke with hurricane dooms,
All ports of the world beside.
Iron and steel may set their seal
On hull and keel, with clanging boasts.
We have won a world to unveil and reveal
All continents and coasts!"

"Beauty!" the forest in silver light,
Breathed dim and strange through the sunset change.
Star-crowned, striding along the height,
Lord of the lofty range.
"No stone takes lines of such vast designs—
No steel such immortal mysteries!
From the birch by the lake to the mountain pines,
We dwell with God!" said the trees.

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Diversity of Mineral Deposits are Found in North Carolina

Seventeen Useful Metals Produced on Commercial Scale, Including Copper, Gold, and Iron, Says State Geologist

By H. J. BRYSON
State Geologist, State of North Carolina

IN NORTH CAROLINA there occur approximately 40 useful metals, distributed through some 284 minerals. Thirty-four minerals have been produced commercially at some time in this State. Eighteen of the minerals produced carry metals, and 11 of these have been a source of commercial metals.

At the present time, 17 different minerals are being produced on a commercial scale. These are beryl, coal, chalcopyrite, kaolin clay, feldspar, gold, kyanite, limestone, magnetite, manganese, marble, marl, mica, pyrophyllite, quartz, silver, and talc. The total value of the production of these minerals is approximately $12,000,000 annually.

Minerals which have been produced commercially in the past, in addition to those mentioned above, are asbestos, barite, chromite, galena, garnet, graphite, hematite, hiddenite, chalcocite, monazite, pyrite, soapstone, sphalerite and zircon. Due to certain economic reasons, as labor, mining costs, new uses, freight rates, power, good roads, in all probability many of these will be produced again. Many of those being produced now will be mined on a larger scale in the future.

Today there are five metals that are being produced commercially in this State; namely, copper, gold, iron, manganese, and silver. In the future, there may be added aluminum, barium, beryllium, calcium, chromium, columbium, lead, mangesium, nickel, potassium, silicon, thorium, tin, titanium, zinc, and zirconium.

At the present time, copper is the most important metal produced in the State. The total production to date is approximately 45,000,000 pounds, of which 41,000,000 pounds were produced in the last five years. This State has become the most important copper-producing state in the Eastern United States, last year surpassing Tennessee. In addition to the Fontana district in Swain County there are several other localities where copper will be produced commercially as soon as the price of copper returns to normal.

A geologist for one of the large mining companies visited the State recently and while here he stated that North Carolina would eventually be one of the largest copper-producing States in America. He visited a great number of localities where large veins of high-grade copper ore occur.

The most important use of copper is in the electric industry, due to its high conductivity. As an alloy, copper has a variety of uses. Copper and tin form bronze, copper and zinc form brass, and these alloys are used especially for ornamental purposes.

The first authentic discovery of gold in North Carolina was on the Reed Plantation in Cabarrus County in 1799, when a 17-pound nugget was found. However, the United States mint records the first production in 1793. Since the first discovery, the total production is approximately $24,000,000. At the present time, there are at least a dozen old mines being investigated to determine whether or not ore of value occurs in them.

Most of the gold ores of this State are of low grade, spotty in distribution and of limited extent. However, a few mines in the past have been worked profitably for many years.

The great trouble with North Carolina gold mines has been too much promotion on the part of the owner and not enough actual and honest prospecting and development. On account of this, it is hard to get large companies interested in North Carolina properties.

Gold is chiefly used for coinage, ornaments, and ornamental utensils. It is also used extensively in dentistry. Its value depends on its brightness, freedom from tarnish, and its ductility and malleability. Pure gold, 24 carat, is too soft for use so it is usually alloyed with copper to gain hardness.

All grades and types of iron ores are found in North Carolina. The first iron ore, of which we have a record, shipped from the New World to the Old was shipped from the eastern part of North Carolina to England. "The history of the early manufacture of iron in North Carolina dates back previous to the Revolutionary War. The first shipment to England was in 1729. The earliest iron works were probably situated near the coast in the neighborhood of bog ore deposits, and consisted of the primitive Catalon forges, blown by water trompe. The first charcoal furnace in the State was the old Vesuvius furnace in Lincoln County, reported to have been built about the year 1792."

In 1880, the Cranberry iron mine in Avery County became the property of the Cranberry Iron and Coal Company and since that time has been continuously and extensively operated.

The iron ores in this State consist of the three chief minerals—limonite, hematite and magnetite. There are scattered occurrences of siderite and a great many deposits of magnetite containing titanium. The bog ores occur in the eastern section while the brown ores and magnetites occur in the western section, especially in Ashe, Avery, Cherokee, Madison, and Mitchell Counties. Considerable prospecting has been carried on recently in those sections.

The total production in this State since 1900 is 1,500,000 tons, valued at $3,800,000. There is probably no metal that has a wider variety of uses than iron, and on account of this it is today one of the greatest industries of the world.

Manganese has been produced for many years at several localities in North Carolina, but at present there is only one locality where it is being produced commercially. A small plant is in operation, or was until recently, in Cherokee County, near Murphy. Manganese ore is found in Lincoln, Gaston, Surry, Transylvania, Madison, Cherokee, and Mitchell Counties. Few if any, of these deposits can be worked at present due to competition from Russia.

Manganese is used in the manufacture of alloys, especially with iron. Other metals alloyed with manganese are copper, aluminum, zinc, tin, lead, etc. The oxide of manganese has a variety of uses, as a decolorizer of green glass; as a coloring agent in calico printing; in the manufacture of dry-cell batteries; and in certain medicines.

Silver has been produced in North Carolina as a by-product from gold, copper and lead-zinc mines. No mines have been operated for silver exclusively. Last year something over $19,000 worth of silver was produced. Silver has been identified in a great many of the Piedmont and mountain counties

Silver was formerly of much importance for coinage, but is much less so now. It is used widely in the arts for making jewelry, utensils, trinkets, in medicines, photography, and as an alloy with gold and copper.

Other ores of metals, as beryl chromite, monozite and zircon have been produced, but time does not permit going into detail as to occurence and uses of these metals.

Need More Fish As Ladies Take Up Fishing Art

Look out for the ladies in 1932, advises the Izaak Walton League as it warns male fishermen that feminine disciples of Izaak Walton are increasing so rapidly that no longer can fishing be called a "man's sport."

The League recently conducted a survey in several localities in the middle west to see if information could be secured on the relative number of feminine fishermen during 1930 as compared with former years. Although the correspondents (male!) hated to admit it, they had to report that the ladies have been invading lakes and streams in increasing numbers.

This increase is found especially in northern lake and recreational areas where excellent roads, comfortable summer camps and fishing resorts, and the use of small motorboats, make the life of a lady fisherman an enjoyable and easy one. Add to this situation the fact that modern fishing tackle now includes mostly artificial lures instead of wiggly angle worms and slippery minnows and it is easy to see why the ladies have been taking up fishing as a sport.

Mindful of this feminine invasion of what was once a man's sport, as well as the increasing number of boys and girls who are taking up fishing, a situation which is requiring heavier stocking of lakes and streams, the Walton League has been building up hatcheries and distributing game fish in scores of communities during the past year.

These projects are designed to supplement the work of fish production of state conservation departments, and many are being conducted in cooperation with state authorities, a single chapter hatchery project distributing as high as 5,000,000 fry in 1931.

Audubon Home to be Restored

As announced in the press on December 6, 1931, the last home of John James Audubon, located in New York City between 155th and 156th Streets and Riverside Drive and familiarly known as "Minniesland," was definitely saved and will be restored and preserved as one of the historic landmarks.

The Committee, headed by Mr. Reginald Pelham Bolton, terminated its efforts, announced its dissolution and wreckers were already at work demolishing the roof and porches of the building, which fortunately were not original.

At this point, through a spectacular last minute effort, Mr. Harold K. Decker of 1848 Washington Avenue, New York City, amateur ornithologist and member of several conservation and scientific organizations, arranged to acquire the building from the wreckers and obtain their cooperation in removal.

Mr. Decker secured an underwriting for the expense of moving the building and part of the cost for restoring it as it appeared when Audubon lived there. For the present the financial sponsorship will remain unannounced by request, but it may be stated that a permanent organization has been formed known as the Audubon Home, Inc., the directorate of which includes a number of distinguished civic leaders interested in wild life conservation, education, natural history, and science.

Because of time limitations which from the beginning, together with other serious obstacles interfered with the various plans for saving the home, it was necessary to remove the building in sections and these have all been transferred to the new and permanent site on city property at 161st Street, West Riverside Drive. The new location is on the elevation directly overlooking the beautiful Hudson River and the Palisades, as well as the gigantic new George Washington Memorial Bridge. It would be difficult to conceive a more magnificent spot for the shrine to the memory of the world famous artist-naturalist.

From the beginning this undertaking has had the whole-hearted approval and sympathy of the City of New York, and has benefited through the splendid cooperation of the Borough President of Manhattan, Hon. Samuel J. Levy and of the Commissioner of Parks, Mr. Walter R. Herrick, admirably assisted by officials connected with their departments. Their sincere assistance in helping to overcome the physical problems involving the granting of permits was vital in bringing the concentrated effort to the successful conclusion which otherwise would have been quite impossible.

The foundation of original stone and brick is already well advanced, following strictly original lines. The building will be restored in every detail, so far as possible, as it was when Audubon occupied it. The exterior will follow the plan of structure as it was known in 1852, and painstaking inquiries will be made from reliable sources for many interior details. Walls, floors and partitions will carry original brick or cinder linings and will be constructed absolutely fireproof. The basement will also provide fire, damp, and burglar-proof vault space.

When complete the building will be stronger and beetter than it ever was and with proper upkeep should last for centuries. It will permit assembling there without danger of damage or loss a great variety of Audubon memorabilia and will safely provide for other educational uses. Special effort will be made to acquire authenticated furniture from the original home. There are no doubt a number of civic-minded owners of originals and other works and possessions of Audubon and his immediate family who will take advantage of the purposes of this institution to present or loan such Audoboniana in the interest of thus better disseminating knowledge of Audubon, not only as a great naturalist and painter of wild bird and animal life, but for those fine personal attributes that ever marked him as a gentleman.

From the inception of plans to save from destruction the historic home of Audubon, which even in its isolated and inaccessible location had been visited by many devoted admirers, a great variety and number of organizations officially approved of and in some instances collaborated in the effort. Many individuals also aided both at the public hearings and otherwise.

The sponsors of the restoration plan acknowledge this endorsement and believe they will have generous financial and other co-operation from nature students, Audubon Societies, Bird Clubs and other groups interested in nature study and wild bird and animal protection.

Those who care for wild birds can never fully repay their debt of gratitude to the most famous ornithologist who ever lived. This opportunity to show appreciation of the memory of Audubon will not come again and should have loyal support.

(*Continued on page 36*)

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NEW ORLEANS, LA.

Deep-sea Farming for Oysters Avoiding Polluted Beds in Massachusetts

BY RAYMOND J. KENNEY
Director, Devision of Fisheries and Game, Commonwealth of Massachusetts

PREVENTED by health regulations from digging clams in thousands of acres of flats along the Massachusetts coast line, Bay State clammers have become "deep sea" farmers in order to preserve one of the most lucrative industries of this section of the country.

Cooperating with the clam diggers all along the shore, the Division is engaged in a campaign of education to show the clam diggers that though a vast area has been barred to their activities, clams can be produced in far greater quantity by increasing the number of "farms" in the non-contaminated beds.

Flats already have been set aside by local authorities in 14 towns along the north and south shores where "deep-sea farming" is being done and gratifying results are being reported.

Under the direction of Supervisor Zenas A. Howes of the Marine Fisheries Branch of the State Division of Fisheries and Game, the clam industry, badly threatened by the health regulations brought about by increasing pollution gives promise of regaining its position in the vast yearly profit wrung by Bay State fishermen from sea and shore.

Claim "farmers" are fast learning modern scientific methods of "tilling" their under-sea acres. After the seed clams are planted in the flats, wire nets are staked over the planting grounds in some localities to prevent the horseshoe crab, winkles and other natural enemies of the clam from destroying them. Other methods of guarding their future "crops" are being employed.

The marine fisheries department with a force of nine coastal wardens, together with a small number of deputy wardens who are generally appointed by the various towns and paid by them, guards more than 2,200 miles of coastline from the tip of Cape Cod to the New Hampshire line and the southern side of the Cape to the Rhode Island boundary. This long line includes innumerable harbors, bays, coves, inlets and the navigable portions of rivers.

This small law enforcement body is equipped with but one small 16 foot boat with an outboard motor. Its duties include the supervision of the entire shellfish industry, clams, lobsters, oysters, quahaugs, crabs, scallops, and all other shellfish. It patrols the vast areas of sea recently closed by a new law, to flounder dragging during certain seasons. It inspects all the salt water finny and shellfish brought into the state, and has supervision over the plants used for chlorination of shellfish taken in contaminated areas.

When the huge value of the fishing crop brought annually into Massachusetts ports, over $20,000,000, is considered, the size of the force to protect these fisheries and the small amount appropriated each year for its upkeep, seem ridiculously low. Yet a surprising amount of work is accomplished.

One of the biggest tasks of the force is the inspection of lobsters imported from Canadian seaports. Local lobstermen trap an annual crop valued approximately at $700,000. Those imported from the Canadian ports run on an average of more than $3,000,000 in value yearly.

All of this more than 10,000,000 pounds of imported lobsters must be inspected on arrival here to see that the Massachusetts law of a 9-inch limit is observed. Those arriving here from Canada under the 9-inch limit are seized and planted along the Massachusetts coast. These seizures amount yearly to more than 20,000 lobsters.

Massachusetts law also bars taking of egg-bearing lobsters. Formerly, when a lobsterman found an egg-bearing lobster in one of his pots, he either threw it back into the water or scraped off the eggs and put it with the rest of his catch, hoping a warden wouldn't come along until his lobsters were marketed. Today that condition has disappeared.

The State now buys the egg-bearing lobsters to the tune of more than $10,000 worth yearly, and places them back as nearly as possible in waters from which they were taken. Many are also thrown back into the sea by lobstermen without recompense, for they have come to realize that without conservation of egg-bearing lobsters, the lobster business will soon become but a memory.

The marine branch also has supervision over saltwater fish that run into fresh waters during the Spring to spawn and the fishways in certain streams established to permit these anadromous fish to reach their spawning beds. One such fishway was constructed during the past year in the Parker River in Newbury.

It will permit alewives, white perch, smelt and shad to ascend the river from the sea more than 12 miles into Cranes and Pentucket ponds in Georgetown. Its operation is expected greatly to improve the fisheries along that portion of the North Shore.

The patrol of the areas barred to flounder dragging is one of the division's most vexing problems. The areas include the whole inside part of Massachusetts Bay sheltered by the arm of Cape Cod, all the coastal waters from Winthrop to the New Hampshire line and the southern part of the State reaching into Long Island sound.

GRAND ECORE BLUFF

There is a place where Red river runs
  below the brow of a bluff
Whose steep and rugged walls are tinged
  With gray and rose and buff.

The river winds in and the river winds out,
  Its red waves kiss the shore,
While time and men are passing by
  The bluff at Grand Ecore.

Atop of the bluff the aged pines
  Are faithful night and day,
And the grass grows in the tented shade
  Where the ghosts of the redmen play.

Across the river one can see
  Green fields that travel far,
And a colony of willow trees
  On a fluted white sandbar.

The sun comes up and the sun goes down
  But the river goes on its way
Beside a pine-crowned bluff with walls
  Of buff and rose and gray.

Though many a full moon's light has lain
  Over the bluff's still breast,
And many a steamboat's low salute
  Has echoed from its crest,

Yet the years have not marred its beauty,
  Quaint in historic lore,
Though time and the tide and men pass by
  The bluff at Grand Ecore.

—*Grace Tarleton Aaron.*

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THE SNOWY EGRET

(Continued from page 5)

tions, however. The herons fly for a great distance to secure food for their young, many going at least twenty-five miles away, and when one is in the marsh in the late evening, he will see flocks of herons headed toward Avery, winging silently along.

Mr. McIlhenny had everything in readiness for our visit, with several blinds erected in favorable spots, so the birds would be used to them by the time of our arrival. The snowy egret and the Louisiana herons were found nesting in the same bushes, while the little blue herons seem to hold themselves aloof, preferring the high bushes for their own. The nests seemed to be just out of jabbing distance of each other, and our cameras were placed so we could photograph any one of a dozen different birds. When we first rowed out to the blind, we made a great deal of disturbance and the herons flushed wildly, but after we were concealed they returned to their nests without loss of time—some to fold their long legs under them and settle upon the four pale blue eggs, some to hover over skinny, fuzzy babies, sheltering them from the heat of the sun with half-drooped wings, and others, to feed greedy fellows who begged for food with throaty, wheezy calls. Young animals of all species, from birds to humans, act the same way, as though they had had no food for a month.

The old egrets are extremely pugnacious and are ever alert to enter a quarrel. If a neighbor's youngster wanders from its own dooryard, into the premises of another, he is pounced upon by all the old ones in the vicinity and hurried on his way with vicious jabs of the needlelike beaks. The adults are at their best when they first return to their nests and are proudly displaying their recurved plumes, when they are showing their indignation and are attempting to prevent an invasion. They raise their crests and scapular feathers, so the delicate lacelike plumes are outlined against the black shadows, and after the wanderer has been ejected, the owner of the nest struts about in triumph. Then, if there is nothing to attract his attention, he settles down upon the eggs or young, and with head thrust slightly forward, is soon dozing. After seeing the same performance a hundred times, I could not help comparing the "flare ups" of the egrets with many in our own lives—we become insulted, indignant, or excited over things just about as important as a youngster stepping on the grass, and after all the trouble is over, we fold up just like the herons, and doze off, waiting for the next thing to worry about.

Conservation of Mineral Resources

Need of Unified National and State Policy

By I. M. BRANDJORD
Commissioner of State Lands and Investments, State of Montana

THE impression seems to have gone out that the report of the Commission appointed by President Hoover to make recommendations with regard to the proposed granting of the public domain to the western States is absolutely opposed to the transfer of the minerals together with the surface rights.

This is not entirely correct. The following statement appears in the report of the Commission under the heading "General Policies":

"We recognize that the Nation is committed to a policy of conservation of certain mineral resources. We believe the States are conscious of the importance of such conservation, but that there is a diversity of opinion regarding any program which has for its purpose the wise use of those resources.

"Such a program must of necessity be based upon such uniformity of Federal and State legislation and administration as will safeguard the accepted principles of conservation and the reclamation fund. When such a program is developed and accepted by any State or States concerned, those resources should be transferred to the State."

The substance of this recommendation is that when any State has accepted and developed a policy that will safeguard reclamation and the principles of conservation, then these mineral resources should be transferred to the State. There was probably an idea lurking in the minds of the majority of the members of the Commission that it would take a long time before the 11 States concerned would develop the required conservation policies, and for this reason the report does not contemplate the immediate transfer of the mineral resources.

There is, however, a very simple method of procedure by which the conservation policy adopted by the Nation could at once become the policy of the grantee States: Just make the acceptance of this policy a condition of the grant. I believe that the coal, oil and gas, metalliferous minerals and other minerals that may be found in the lands should be granted to the States at the present time, together with the surface rights. But in order to insure the continuation of the national conservation policy, including reclamation, the granting act should reserve in the National Government the right to supervise and regulate the production and distribution of oil and gas.

By making this condition a part of the grant itself it would constitute a contract between the United States and every State that accepted the grant. The power of the United States to continue this branch of conservation would thereby remain undisturbed and undiminished. And, by the way, is not this about the only method by which a uniform conservation policy could be established throughout a dozen separate and independent States?

The Reclamation Service of the United States and the Reclamation Fund should, of course, be fully safeguarded through the granting act. The Reclamation Service is one of the great creative agencies of the Government, and its continued work is of vital importance to the West, including the State of Montana.

At the present time the biggest portion of new funds for the Reclamation Service comes from oil and gas royalties produced from the public domain. Fifty-two and one-half per cent of these royalties is not now going into the Reclamation Fund; 37½ per cent is paid to the State in which the lands are located, and the 10 per cent remaining is paid into the United States Treasury.

For the protection of the Reclamation Fund the granting act should provide that the accepting State must continue to pay the 52½ per cent of the oil and gas royalties from such lands into that fund as long as the Reclamation Service continues construction work in the western States, and no longer. If the laws should be so changed that a smaller percentage of the royalties than 52½ per cent is paid into the Reclamation Fund from a State not accepting the grant, then the royalties from the accepting State should be automatically reduced accordingly.

I believe that these simple conditions embodied in the granting act would fully insure the continuation of the conservation policy developed by the United States, safeguard the Reclamation Fund, and thereby fully justify the transfer of the minerals at the present time.

So far, the special friends of conservation have not developed any substantial argument

(*Continued on page 40*)

AUDUBON HOME TO BE RESTORED

(*Continued from page 31*)

By request, the financial sponsorship will remain unannounced for the present, but for the information of the public the directorate includes a number of leaders distinguished for their work and interest in wild life conservation, education, natural history and science. The members of the Board of Directors are: Dr. James P. Chapin, Mr. S. Harmstead Chubb, Mr. James L. Clark, Mr. Harold K. Decker, Dr. Milo H. Gates, Mr. Samuel V. Hoffman, Dr. George F. Kunz, Dr. Frank R. Oastler, Dr. George H. Sherwood. The officers of the corporation are: President, Dr, Frank R. Oastler; Vice-President, Dr. Milo H. Gales; Secretary and Treasurer, Mr. James L. Clark; Executive Secretary, Mr. Harold K. Decker.

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Ten New Bird Sanctuaries Are Acquired in Nine States

ACQUISITION by the Government of 43,227 acres of land costing approximately $248,000 to be used as migratory bird refuges was authorized Dec. 3, by the Migratory Bird Conservation Commission, the Department of Agriculture announced Dec. 4.

The lands approved on Dec. 3, comprise 10 tracts in the nine States of New York, Maryland, North Carolina, South Carolina, Florida, Nebraska, North Dakota, Wyoming and Nevada; they bring the total area which the Government is empowered to acquire up to 154,744 acres with an additional 65,970 acres set aside for refuges by Executive order, the announcement explains.

The membership of the Conservation Commission includes the Secretary of Agriculture, the Secretary of the Interior, and the Secretary of Commerce, all of whom were present at the meeting which authorized the acquisition, the announcement says.

The statement follows in full text:

The Migratory Bird Conservation Commission, of which Secretary Hyde of the Department of Agriculture is chairman, yesterday (Dec. 3) authorized acquisition of lands by the Bureau of Biological Survey for 10 migratory game bird refuges in New York, Maryland, North Carolina, South Carolina, Florida, Nebraska, North Dakota, Wyoming, and Nevada. The area amounts to 43,227 acres. The cost to the Government will average $5.74 an acre.

The 10 proposed refuges had been surveyed previously by biologists and land valuation experts of the Biological Survey, and the Department of Agriculture had approved their acquisition as units in the nation-wide system of refuges authorized by Congress.

Including the lands approved by the Commission, 154,744 acres have been authorized by the Commission for acquisition by lease and by purchase since the migratory-bird refuge program was initiated in 1930. In addition, 65,970 acres have been set aside by Executive order and Presidential proclamation, making a total of 220,713 acres established or in the process of being established as inviolate Federal Sanctuaries for migratory birds. Refuges have been established in California, Nevada, Montana, Wyoming, North Dakota, Nebraska, Oklahoma, Florida, South Carolina, North Carolina, Maryland and New York. The average cost per acre of all lands approved for purchase under the act is $4.30.

In New York the Commission authorized the leasing of lands for the Hempstead Migratory Bird refuge, an area of 2,274 acres of land and water adjacent to Howlett, Long Island. Because it is on the Atlantic coast flight route of migratory birds and near to the metropolitan area of New York, this is considered an important link in the eastern chain of refuges. Within a zone where there is a great concentration of hunters and no refuge, this unit is a valuable migratory waterfowl sanctuary.

An outstanding acquisition approved by the Commission at its meeting yesterday is the Blackwater Migratory Bird Refuge on the Eastern shore of Maryland. This unit, situated about 10 miles from Cambridge, Md., contains approximately 10,000 acres, including marshes where black ducks and blue-winged teal breed in greater numbers than on any other area on the eastern seaboard south of Labrador. Mallards and pintails also concentrate on the marshes during the migration season, and many shorebirds will find sanctuary here.

In the Swanquarter Migratory Bird Refuge in Hyde County, N. C., acquisition of 3,600 acres contiguous to tracts previously approved was authorized. The refuge area will thus be consolidated and its value as an inviolate sanctuary increased. With the water areas this tract borders, the refuge will now make an administrative unit of about 25,000 acres.

Acquisition in South Carolina of approximately 414 acres of land, approved yesterday, will complete consolidation of Government-owned land in the Cape Romain Refuge. The total area in this unit is now about 33,000 acres.

The Commission also approved the acquisition of 5,285 acres for the St. Marks Refuge, Fla., to consolidate the Government holdings there. With narely 14,000 acres approved for acquisition a year ago this brings the total area in the process of acquisition to 19,167 acres. Stretching for approximately 14 miles along the shores of Apalachee Bay, St. Marks Refuge is a famous Winter resting ground for many species of ducks and shorebirds and one of the greatest Canada goose concentration areas along the Gulf coast.

Crescent Lake Migratory Bird Refuge, Nebr., in accordance with yesterday's authorization, will be extended by the acquisition of 1,688 acres, including several extensive water areas and numerous ponds and potholes. The acquisition will also tend to round out the boundaries of this sanctuary, which now includes about 40,000 acres.

By approving the acquisition of numerous small tracts bordering on Long Lake, in Kidder and Burleigh Counties, North Dakota, the Commission took steps looking to the establishment of the first Federal migratory-bird refuge in that State. A favorite nesting ground for many forms of migratory wild life, the area will now become an inviolate sanctuary. Because of subnormal water conditions, duck sickness is still a serious menace there, but the Biological Survey is planning to take corrective measures. The total area approved Dec. 3, for acquisition there is 4,269 acres.

The acquisition of 3,465 acres in Wyoming is the first to be approved for that State. Two refuges about 12 miles apart, one at Bamforth Lake and the other at Hutton Lake, both near Laramie, will be acquired. In Wyoming the available water areas are so few that the Biological Survey considers this acquisition to be of exceptional importance to the conservation of migratory wild life.

The lands being acquired in Nevada will be additions to the 17,902 acres of the Fallon Migratory Bird Refuge set aside from the public domain by executive order in February, 1931, as a sanctuary for migratory birds. The total area will now be 31,288 acres.

The members of the Migratory Bird Conservation Commission attending the meeting yesterday were Secretary of Agriculture Hyde, chairman; Secretary of the Interior Wilbur, Secretary of Commerce Lamont, Senator Peter Norbeck of South Dakota, and Representative Sam D. McReynolds of Tennessee. Senator Harry B. Hawes of Missouri was out of the city. The late Ernest R. Ackerman, former Representative from New Jersey, was also a member of the Commission.

In addition to the Cabinet and congressional members in attendance, the following were present as ex-officio members to act when lands in their respective States were being considered: C. C. Woodward, State Game Commissioner of Florida; A. A. Richardson, Chief Game Warden of South Carolina; J. W. Harrelson, director of the Department of Conservation and Development of North Carolina; E. Lee LeCompte, State Game Warden of Maryland; Burnie Maurek, State Game and Fish Commissioner of North Dakota; Frank B. O'Connell, secretary and warden of the Game, Forestation and Parks Commission of Nebraska; and Robert L. Douglas, chairman of the State Fish and Game Commission of Nevada.

SANCTUARIES FOR BROWN BEARS

(Continued from page 11)

Of the islands in Southeastern Alaska that have been proposed as sanctuaries for bears we believe Admiralty Island to be the most nearly ideal. This large island is known to be inhabited by at least five species of brown and grizzly bears, all of which are specifically different from the larger brown bears farther North, and are representative of species found on the nearby mainland. The presence of so many species on one island renders this isolated area one of tremendous potential value as a wild life laboratory where the habits and behavior of the various species might be studied. No other similar tract with equal scientific possibilities of this sort is known. Delay in setting aside this area will result in its value being destroyed through the extermination or serious impairment of its bear fauna.

PROCESS MAKES GRASS INTO CLOTH

(Continued from page 12)

that it is the only ramie yarn in the last twenty years—they have tested them all—that has strength, uniformity, stability, and that does not deteriorate or crack. Ramie made from other processes, according to the machinery manufacturers, has proved brittle, lacking in tensile strength, and has had little or no elasticity.

The chemical tests have been made by Meigs, Bassett & Slaughter of Philadelphia, consulting chemists for some of the foremost companies in the country. A group of manufacturers of textiles and other fabrics, as well as paper and felt and asbestos, who have obtained the new ramie yarn, have made up products from it and have reported favorably on the results.

Ramie has been widely cultivated in China, Formosa, Japan, India, Malaya, Queensland, Mauritius, the Kameruns, the West Indies, Brazil, and Mexico.

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Italy Bars Species Of American Fish

Recognizing the mistakes that have occurred through the indiscriminate distribution of various species of fish in the United States, the Bureau of Fisheries, Department of Commerce, states that it is "gratifying to note that consideration is being given to possible harmful effects which may result from the introduction of nonindigenous species of fish elsewhere," as exemplified by Italy's forbidding the introduction of catfish in the waters of that country. The Bureau's statement follows in full text.

Each year the Bureau receives various requests to furnish different varieties of American fishes for shipment to, and acclimatization in, foreign countries. Several species have become established in Europe, Japan and South America.

It is therefore somewhat unusual to encounter instances where American forms are barred from importation into other lands. Under the terms of the Royal Decree No. 442 of March 2, 1931, the introduction, transport, trade and holding of live catfish (Ameiurus nebulosus) into Italy is forbidden. It is stated that the reason for this ban is the damage caused to other fish in fresh water.

Recognizing the mistakes that have occurred in the indiscriminate distribution of various species of fish in this country, it is gratifying to note that consideration is being given to possible harmful effects which may result from the introduction of nondigenous species of fish elsewhere.

ANALYZING FOOD VALUE OF FISHERY PRODUCTS

(*Continued from page 14*)

industries for recent developments in this field. Some recent studies of the Bureau's technologists in this field have been the evaporation of moisture from frozen fish, the rusting of frozen fish, the losses incurred through leaching of fish packed in ice, and the freezing of oysters. In past years, technologists of the Bureau have made valuable contributions to scientific knowledge concerning the canning, smoking, and salting of fish.

Investigations of the nutritive value of marine products represents a more recent development or expansion of the Bureau's service to the industry. Yet, because the fisheries represent a valuable source of foods, the Bureau of Fisheries in recent years, has become greatly interested in the science of nutrition. At first, the Bureau had neither the trained personnel nor the facilities for performing nutrition research. Therefore, our first efforts along these lines were directed toward interesting other Government bureaus, research organizations, etc., in cooperative enterprises.

Notable among the contributions of the Bureau of considerable commercial value in this field of activity was the demonstration through scientific research, completed as a cooperative investigation of the Bureau of Chemistry and Soils and of this Bureau, that certain domestic fish oils, hereto-fore finding a somewhat limited market in the arts and industries, were rich sources of vitamins A and D, and could be substituted for imported cod-liver oil. Rapid commercial development has followed this discovery.

The possibilities for future commercial development of our domestice fish oil industries, as a result of this one technological investigation, are almost unlimited. When these oils are produced in such a manner as to preserve the maximum of their vitamin potency, such markets as animal nutrition, medicinal use, and use in edible oils and fats, may be opened for development, to the ultimate economic enrichment of the entire country.

Other nutrition investigations of the technologists of this Bureau are: Studies of the vitamin D content of oysters, cooperative research with the South Carolina Food Research Commission of the mineral content of oysters with relation to the prevention and cure of nutritional anemia, chemical and spectrographic analyses of the mineral elements of fish, shellfish, and kelp meals, investigation of the nutritive value of fish flour and fish meal, and continued studies of the vitamin content of fish oils.

The number of nutritional studies relating to and depending on other phases of the Bureau's technological investigations, together with demands for nutrition investigation from the industry, have compelled the Bureau to establish its own nutrition laboratory. This is being done at the present time and the investigations already planned will tax the facilities of the new nutrition laboratory to the utmost for at least a year or more.

Plans are being made at present by the Bureau to enter a new field of fishery technology, namely, industrial marine bacteriology. Studies will be made of the bacteriology of frozen fish, the bacterial action in smoking, bacteria in relation to canning, and many other subjects of interest, where it is hoped investigations will reveal knowledge of value to the fishery industries.

CONSERVATION OF MINERAL RESOURCES

(*Continued from page 35*)

against granting the metalliferous minerals to the States. As fas as known, the Government has not any special conservation policy with regard to these minerals. The public domain is open to prospecting for such minerals by anybody and everybody, and this freedom has led to the discovery and development of the mineral resources of the West.

I believe that this right to prospect for metalliferous minerals should remain undisturbed after the lands have been granted to the States. These rough lands are not of a delicate and brittle structure like egg shells and cannot possibly be greatly damaged by the heel of the prospector or the pick of the miner. Not only should continued free and unobstructed prospecting be allowed, but the prospector should be assured of a perpetual mining lease from the State to any valuable metalliferous minerals which he might discover at a low and fixed royalty.

If the State should be granted the unrestricted right to charge royalties on the minerals discovered to the full extent that the triffic would bear, this would greatly discourage prospecting and mining. There would be a constant apprehension in the mind of the prospector that no matter how rich mineral deposits were discovered, it would not bring any wealth to him, as the State might take all the profits. By restricting the royalties that might be charged to a flat rate of, say 5 per cent, this apprehension would be largely allayed.

The mineral royalties collected should be paid into the permanent school fund, and thereby a part of the value of the minerals would be conserved and work for the good of the State for a long, long time to come.

Coal is not in high repute at this time. Owing in part at least to the development and utilization of gas and oil; but the time will come when our gas resources will be exhausted and our oil wells will be dry. In all probability it will then be necessary to turn to coal as a source of heat and power.

INTERSTATE COMPACT FOR STABILIZING OIL INDUSTRY

(*Continued from page 23*)

porary compact enforced partly by martial law, will grow into something permanently effective, or else a continuation of such sprees as we have seen in East Texas very quickly will convert the indigestion of the oil industry into something like appendicitis.

Meanwhile, there are certain things that can be done without waiting for legislation. I hope that Kansas, Oklahoma, and Texas continue their joint curtailment program, and their public service commissions and the Oil States Advisory Committee continue to cooperate.

The Federal Oil Conservation Board will continue to supply such forecasts of supply and demand as may be helpful. The question of relief from excessive imports while we are correcting our domestic situation can be taken up by the official state commissions directly with each importing company. While a Federal statute prohibits agreements between individuals looking toward import restrictions, I know of nothing to prohibit a state from such discussions, conducted formally by its regulatory body for the purpose of acquiring information on which to base its own proration program.

Imports for the first nine months of 1931 were about 26 per cent below the comparable 1930 figures; you are familiar with the efforts of the Federal Oil Conservation Board to that end. While further adjustment of imports may be desirable, it will not cure all of our difficulties, the greatest of which lie within our own borders, and it should be kept in mind from the standpoint of national interest that we are exhausting our own reserves of this vital resource at a rate out of all proportion to the ratio between the our own reserves and those of the rest of the world. As you all know, the United States, with less than 20 per cent of the world's reserves, is producing and consuming oevr 60 per cent of current world production.

The oil industry has a great responsibility and a great opportunity. Its market reaches to every family and every industry in the country. It deals with a national resource in which every citizen has a vital interest. If conducted on the basis of a trusteeship of a basic commodity, avoiding unnecessary wastes in production and distribution, the industry should be able to furnish an adequate supply of oil and its derivatives of good and uniform quality at fair prices to the consumer, and to make a fair return on its invested capital.

These purposes can be accomplished largely within the framework of existing laws and with a minimum of Federal regulation, if the industry will whole-heartedly cooperate in making effective the measures already initiated and the proposals which have been outlined. I have every confidence that the industry has or will develop the capacity and leadership to recognize its great opportunity and to discharge its equally great responsibilities.

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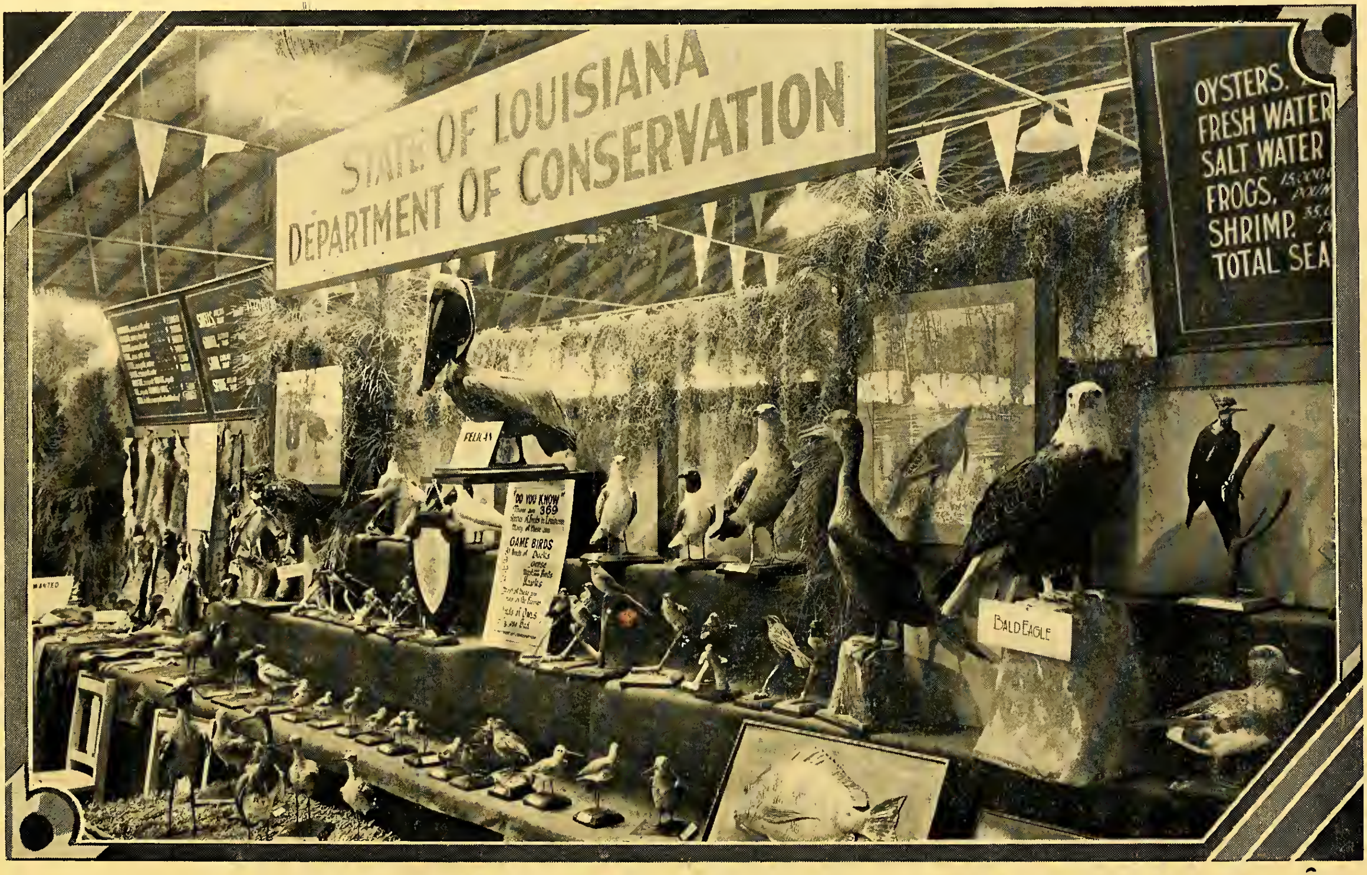

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